# By G. F. T.

## A Few Impersonations

Thinking that, after all these years, readers of this kolyum may be tiring of our lit-ry style, we're going to give you—ladeez an' gennemun—a few impersonations for your three-dollar cover charge (there are no covers on ELECTRIC REFRIGERATION NEWS, but you get charged three dollars just the same).

Here's how some of your OTHER (how we brag) favorite colyumists would report the week's doings:

* * *

## By G. F. T. Brisbane

NEMA, which is a short word for National Electrical Manufacturers Association, reports that makers of electric refrigerators sold 135,470 boxes in March. That's good news for the manufacturers. They set a new record for the month. It's good news for the public, more jobs, more money, more of everything. It's good news for William Randolph Hearst, whose great metropolitan newspapers and *American Weekly*, with the largest magazine circulation in the world, will carry more refrigerator advertising. Advertising is a great thing.

MANUFACTURERS may think 135,470 refrigerators is a pretty big number. Astronomers, however, wouldn't think much of it. The star Vega is 83,000,000,000,000,000,000,017 light years away from the earth. That's a long way off. Study astronomy. Astronomy is a great thing.

BIG NUMBERS don't worry astronomers. But they would puzzle an anthropoid ape. An anthropoid ape could take two astronomers and beat their heads together. Pity the poor astronomers. They are all heads. But pity the poor anthropoid apes. All the apes in the world couldn't measure the distance from the star Vega to the earth. That takes brains. Astronomers have brains. Use your brain. A brain is a wonderful thing.

CALIFORNIA shows up well on the list of states in the Nema figures. Californians bought 9,228 refrigerators in March. Forty-five other states bought less. Californians live in a healthy climate. They get sunshine and exercise. That makes them want to eat. So they buy more refrigerators. Go to California. Buy some California real estate. You won't have CALIFORNIA REAL ESTATE locked up in any bank. California real estate is a wonderful thing.

PEOPLE of the United States have money today. They are buying electric refrigerators. That is all right, but they should buy airplanes, too. Japan could sweep across the ocean in a fleet of airplanes, destroy Pacific Coast cities in the twinkling of an eye. Electric refrigerators wouldn't help much then. Airplanes would. PROMOTE AVIATION. An airplane is a wonderful thing.

* * *

## By G. F. T. McIntyre

Thoughts while strolling: Vice President H. W. Newell of Frigidaire and Fredric March look alike. Lester Larkin, the Larkin coil man, never wears a hat. No one carries a boutonniere so jauntily as Rex Cole. What would Dick Cooper look like without his moustache?

One word description of John Knapp: aggressive. Geoff Johnston's telephone voice makes one think of a mastiff's throaty rumbles. But unlike a mastiff, Universal Cooler's president is always in a kindly humor. Whatever happened to George Dwelley? One of my favorite people—Lou Maxon.

Whoever puts a compressor in the basement any more? Must be out of date. Like bustles. Well I remember when, as a callow reporter fellow up from Gallipolis, Ohio, to the big city, I interviewed Lillian Russell. She wore a bustle. Whoops! And tra-la.

That new sales executive of Powel Crosley's, H. E. Richardson, has ideas. Henry Burritt drives a Pierce-Arrow. T. Irving Potter's Marmon 16. Jud Sayre has a Cadillac 12. And a picturesque vocabulary. Wonder how J. M. Fernald is doing 'way out West.

No one typifies the boulevardier so well as Syd Caswell. Wonder how I'd look with a cane? One time I appeared at a restaurant in a tux. And some patrons, just arrived, asked me to show them to a table. Just a small town boy! I must remember to put out my radishes early this year.

Wonder if Eddie Nolan can sew? Sign in a shop window: "Electric refrigerators $79.50. General Electric motor." Walter Daily is a bachelor. Among the hobbies: Art Scaife likes to tinker with the water faucets and things around his house. "Mike" Sweeney has a fine baritone voice. Nothing I like to do better than harmonize on "By the Old Mill Stream." With my Coca Cola bass voice. Whoever originated "That's Why Caviar Is My Dish?" Or that rollicking parody beginning "Gentlemen Will Please Refrain?"

Diary of a Modern Samuel Pepys: Up betimes and had my morning orange juice and in a dither thinking what if we didn't have to sleep? Always hate to go to bed for fear I'll miss something. Note from Allen W. Church wondering why Gibson isn't in the news more, and fell to thinking of Rome and Greece and puzzled long o'er Why Are We Born? This pleasant soliloquy interrupted by long distance telephone call from Bob Richards telling us that our candid camera photography has given a new topic to the editors' round tables in New York. Ha ha! It takes a country boy to show these here city slickers! Ha ha! To lunch with three gentlemen from Australia—they call it "Austrylya"—and much brave talk and fell to musing over What Is Distance? Ray Sherman sent a copy of his new book and so turned idly through its pages until sleepy wondering What Is Literature? And so to bed.

* * *

## By G. F. T. Winchell

Dan Wile, Detroit Lubricator big brain, and Lou Aldrich, Detroit schoolteacher, have Middle-Aisled it, after being That Way about each other these many moons . . . They tell friends they'll never go Pffht! . . . But no Blessed Event is expected . . . Have you heard about the woman who had 14 children and went Stork Mad? Haw! . . . And the ambitious street cleaner who threw himself into his work?

Walter Bowe, head advertiser for G-E air conditioning, is On Fire about his job . . . Irish Joe Donovan, another G-E air conditioning Biggie, says business is Blazing . . . Haw! And I always though air conditioning was cool! H. O. Berg, red-headed member of Dick Cooper's commercial staff in Chicago, is said to be the Bigshot of air conditioning salesmen . . . His boss, Lou Kohlmann, tells me so . . . Berg is an old schoolmate of mine . . . G.F.T. Winchell never goes back on a pal!

Flash! Mrs. Winchell's little boy Walter has done it again! Here's where we scoop the telegraph editors again . . . And all my imitators . . . Well, you asked for it, so here it is . . . Two masked and armed bandits held up the Walker store in Paso Robles, California, Monday night shortly after 11 o'clock . . . While one bandit held a gun on Mrs. Walker and Fred Banks, the other bandit gave his attention to the cash drawer. Mr. Banks made a timely break for the rear door when the first bandit let his attention waver to his partner who was counting the loot . . . Suddenly catching Mr. Banks in the act of escaping for help, the first bandit fired at his fleeing form . . . The .32 calibre bullet intended for Mr. Banks hit a Grunow refrigerator instead, and bounced against a window where it fell, flattened and harmless . . .

An orchid to Mr. Grunow and his refrigerator for saving Mr. Banks' life . . . And another orchid to my informant . . . Read Walter Winchell and you'll get the news ahead of the newspapers, as long as my news sources hold out . . . I never reveal the identity of an informant . . . This is a true story . . . If you don't believe it, you can get documentary evidence from Jim Davin, biggie from the General Household Utilities gang, who told me about it . . . Or from the *Paso Robles Press*, which printed the story last week . . .

Mrs. Brown . . . detested drip pans . . .

## By G. F. T. Time

Twilight calm settled upon the softly corrugated brow of gray-haired, multiwrinkled centenarian Martha Mansfield Brown of Williamsport, Pa., one night last week, for in the twilight of her calm life one irritating duty had been removed. No longer did calm, wrinkled, centenarian Martha Mansfield Brown have to empty the drip pan she kept under her weatherbeaten old ice box.

Mrs. Brown passed her 99th birthday March 21. No birthday candles lit she on her cake. Said Mrs. Brown:

"I think birthday candles are . . . foolish, and besides, 99 candles . . . are too many."

Sensible, calm, wrinkled centenarian Mrs. Brown, thinking candles foolish, purchased instead a General Electric refrigerator, model HX-70.

"I wanted to lighten . . . my work," said she.

Friends, smiling, intimated that Mrs. Brown didn't like to empty ice box drip pans, had always hated drip pans, bought the G-E refrigerator because a smart salesman showed her she wouldn't have to empty drip pans if she used his patented product.

To Salesman John Waltz of the Pennsylvania Power & Light Co. goes the honor of making the first recorded sale of an electric refrigerator to a centenarian. Admitted Salesman Waltz:

"Mrs. Brown . . . was the oldest . . . prospect I ever . . . had."

No believer in new-fangled time payment, hire purchase, or "finance" plans, 99-year-old old Mrs. Brown stuck to the old-fashioned way of settling a bill. She paid cash.

* * *

## By G. F. T. Robinson

Quite by accident the other day we heard a CLARA, LU 'N' EM radio program. In case you're not familiar with this broadcast (we weren't) let us identify the three voices as three neighbor women who gossip together every morning in a highly realistic manner.

Well, sir, this time the three women got pretty stern with each other (they are, we understand, usually the best of pals). Reason for their set-to was Lu's icebox, which dripped water through the ceiling of Clara's apartment below.

It seemed that Lu just couldn't remember to empty the drip pan; hence Clara's ceiling was forever leaking.

Various schemes were proposed to remedy Lu's mental lapses about the drip pan, including a marked calendar. But Clara didn't seem to have much faith in any of 'em.

Best and surest solution of all wasn't mentioned: *Buy an electric refrigerator.* We'd suggest a good salesman get on Lu's trail at once.

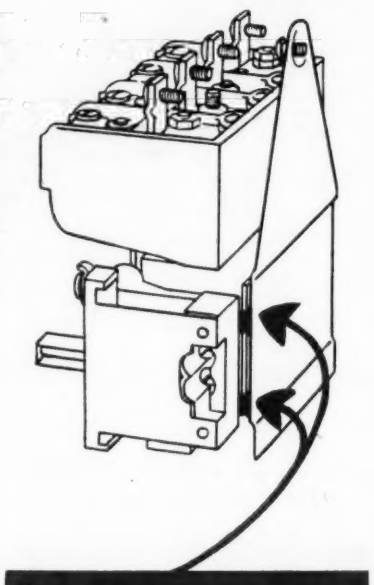
## Don't Be Fooled; This Scene Is Not What It Seems

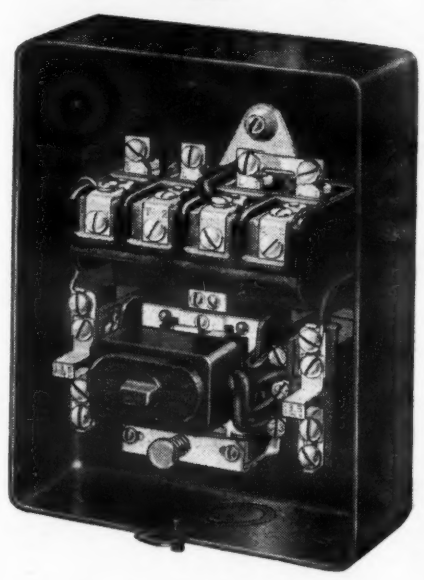
When first we saw this scene, we thought all we had heard about the demand for electric refrigerators this season was true. But after taking the photographs, we learned that instead of a refrigerator buying rush at a Chicago refrigeration store, it was a Junior League rummage sale! Majestic doesn't live there any more.


Noiseless

A.C. Automatic Starters for Air-Conditioning Motors

BULLETIN 709





MOUNTED IN RUBBER

Quiet!

No automatic starter can be more noiseless than the New Bulletin 709. The switch is mounted in rubber grommets that stop the slightest hum or noise. Compressor vibration cannot reach the starter mechanism. Furthermore, the solenoid construction—a new idea in small automatic starters—disposes of noisy clapper contacts. There are no trouble-making bearings—no flexible shunts—no bulky arc barriers—no slate or molded panels.

The Bulletin 709 Starter is the most compact starter available for refrigeration service, yet its tremendous switching capacity enables it to interrupt motor currents within its rating under any service condition. The polyphase ratings of 3 H.P., 110 V.; 5 H.P., 220 V.; 7½ H.P., 440-550 V. adapt it for a wide range of refrigeration applications.

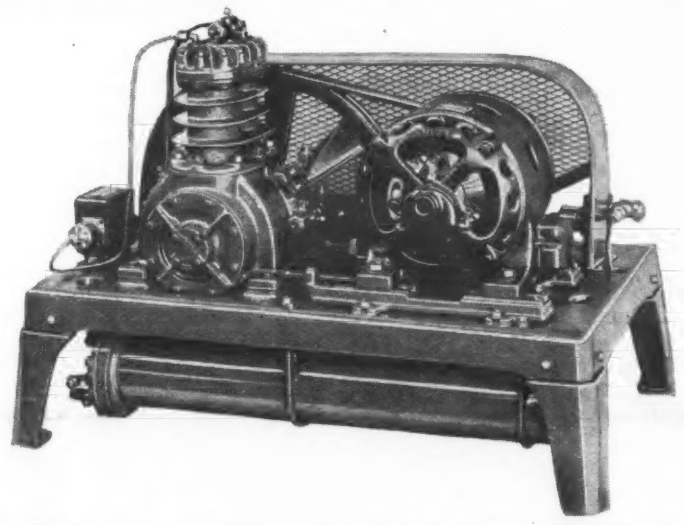
The Bulletin 709 Automatic Starter is made in two forms especially for refrigeration service: Form 2 is used with 2-wire pilot devices; Form 3 has a lever switch for manual operation if the automatic pilot device fails. Every refrigeration engineer should read Bulletin 709. Write for it today!

ALLEN-BRADLEY CO., 1313 S. First St., Milwaukee, Wis.

ALLEN-BRADLEY

A. C. AUTOMATIC STARTERS





15 Zerozone Commercial Units Available

Air or Water-cooled

ZEROZONE in refrigeration circles means "Sturdiness" "Efficiency" "Precision" and all of the other synonyms indicative of complete customer satisfaction.

For years Zerozone has been noted for its quiet operation — its reserve power, and its ability to constantly deliver its rated refrigeration load.

There is an opportunity at this time for distributors who know the importance of the commercial side of refrigeration, to make money selling ZEROZONE units. Let us tell you about them.

ZEROZONE sizes commence with 1/6 hp. units to 3 hp., air or water-cooled.

Zerozone
Lifetime Refrigeration

Sales Offices:
1315 Engineering Bldg., 205 W. Wacker Drive, Chicago, Ill.

THE NEWSPAPER OF THE INDUSTRY

# ELECTRIC REFRIGERATION NEWS

WRITTEN TO BE READ ON ARRIVAL

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MAY 11 1934

## 26,402 Norges Are Delivered In Past Month

### 34,360 Orders Unfilled on May 1; Best Mon In History

DETROIT—With the shipment of 26,402 electric household refrigerators in April, Norge Corp. set an all time production mark, exceeding its best previous month's record by 6,404 units, according to Howard E. Blood, president.

Unfilled orders on hand at the end of the month totaled 34,360 units, Mr. Blood announces.

Total orders for the first four months of this year exceeded total shipments for the entire year of 1933, the best previous sales period, by 11 per cent.

"April deliveries were approximately two and a half times those of the same month last year," said Mr. Blood. "Our new record was set directly following the record breaking month of March when 19,988 units were shipped."

## Crosley Designs Air Cooled Bed Canopy

CINCINNATI—Powel Crosley, Jr., president of Crosley Radio Corp., is introducing the Crosley "Coolrest" air-conditioned bed canopy, which employs a self-contained system providing cooled, dehumidified, and recirculated air for sleepers.

The canopy consists of a fabric which encloses the bed and has the appearance of an army tent. Top is supported by two swinging stauchions which allow the sleeper to push the canopy away with a single motion. The canopy is tied to the two bedposts at the head of the bed and tucked in at the bottom.

The conditioning unit will cool, dehumidify, and recirculate the air. It is portable, being mounted on wheels, and can be drawn up to the bed when

(Concluded on Page 4, Column 2)

## With Wurlitzer

EARL L. HADLEY

* * *

## Hadley Will Direct Advertising of 30 Wurlitzer Stores

CINCINNATI—Earl L. Hadley, former advertising manager of the Grigsby-Grunow Co., has been placed in charge of advertising and sales promotion for the 30 Rudolph Wurlitzer retail stores operated in major cities throughout the country by the Rudolph Wurlitzer Co.

Mr. Hadley will make his offices at the company's headquarters here.

## U. S. Collects $295,307 On March Unit Sales

WASHINGTON, D. C. — United States Internal Revenue collections from mechanical refrigerator manufacturers during March amounted to $295,307 as compared with $125,340 in March, 1933, a recent Treasury Department report reveals.

## 4 Commercial Units Added by Westinghouse

### New Conventional-Type Compressors Built in 1 & 1.5-hp. Sizes

MANSFIELD, Ohio—Addition of four new compressors to augment the Westinghouse commercial refrigeration line was announced last week by H. M. Wible, manager of commercial refrigeration sales. The new units include 1-hp. and 1½-hp. models both air and water cooled.

The new compressors, which are two-cylinder models of the conventional type, supplement the existing Westinghouse commercial models, which are hermetically sealed units up to ½ hp.

Also announced last week by Mr. Wible was a complete line of cooling coils in both the natural-draft and forced-convection types, to meet all types and sizes of applications.

Compressors in the four new models

(Concluded on Page 13, Column 1)

## Grunow List Prices Raised on 5 Models

CHICAGO—Price increases on all Grunow household electric refrigerators, with the exception of the smallest model, were announced last week by officials of the General Household Utilities Co., manufacturer of Grunow electric refrigerators. Increases on each model were given as follows:

Model 54-D, 5.4 net cu. ft. capacity, $4.50; model 65-D, 6.5 net cu. ft. capacity, $5; model 80-D, 8 net cu. ft. capacity, $5; model 65-SD, 6.5 net cu. ft. capacity, $10; model 80-SD, 8 net cu. ft. capacity, $10.

## Terry Manages New Kelvinator Dept.

DETROIT—J. A. Harlan, manager of the commercial sales division of the Kelvinator Sales Corp., has announced the appointment of M. C. Terry to head the commercial applications department.

Mr. Terry, former manager of the company's air-conditioning department, succeeds John Wyllie, who resigned to join Liquid Cooler Corp. as general sales manager.

The department now under Mr.

(Concluded on Page 4, Column 5)

## Donald Made Managing Director of Nema

NEW YORK CITY—W. J. Donald, formerly vice president and managing director of the American Management Association, has been elected managing director of the National Electrical Manufacturers Association, succeeding A. W. Berresford, resigned.

## Plans Released for TVA Appliance Advertising

NEW YORK CITY—Posters, booklets, and window displays constitute the first promotional helps which the Electric Home & Farm Authority will use in its plan to merchandise low-cost electrical appliances in the Tennessee Valley region, it was made known last week by Young & Rubicam, Inc., advertising agency which has been given a four months' contract by the government.

The greater part of the agency's work during the first four months will be devoted to research. At the end of that time the agency will submit proposals for a long-time advertising and promotional program.

According to Forrest Allen, director of publicity for the EH & FA, the opening promotional effort will be designed to reach as many people as possible by direct methods.

Several posters are being prepared for immediate use. One card will

(Concluded on Page 4, Column 4)

## Changes Proposed in Commercial Code

WASHINGTON, D. C.—Public hearings on proposed amendments and modifications of the code for the Commercial Refrigerator Industry will open at 10 o'clock Tuesday morning, May 15, according to Barton W. Murray, deputy administrator.

Principal changes, as suggested by the Commercial Refrigerator Industry Code Authority, are as follows:

A down payment in cash amounting to at least *10 per cent* of the purchase price instead of *20 per cent* as now provided by the code.

The balance due to be paid 24 months from *date of shipment* instead of *date of contract.*

Any contract for the sale of a product which does not provide for payment in full within 90 days is to be considered an instalment contract.

The term "commercial refrigerator"

(Concluded on Page 4, Column 1)

## Kelvinator Ships 57,245 Domestic Models in April

### Shipments Set All Time Record, Increase Is 90% Over April, 1933

DETROIT—During the month of April Kelvinator Corp. shipments totaled 57,245 units, a gain of 90 per cent over April, 1933, and a new all-time record, according to figures released last week by H. W. Burritt, vice president in charge of sales.

The best previous month's showing had been made in May, 1933, when 43,357 units were shipped.

"This April volume surpassed all expectation," Mr. Burritt declared. "We had set our production schedules for April at 30,000 units but we were forced to revise this three times."

## N. Y. Distributor Sets Uniform Prices

NEW YORK CITY—Bushwick-McPhilben Corp., distributor in Greater New York for Sparton electric refrigerators and radios, has set up a plan for establishing uniform re-sale prices among its dealers by delivering new models only to retailers who have entered into a uniform agreement providing that the re-sale prices

(Concluded on Page 4, Column 4)

## Copeland Increases Prices on 7 Units

MT. CLEMENS, Mich.—Increases in the prices of its household refrigerator models, effective May 10, have been announced by Copeland Refrigeration Corp. The advances in list prices range from $5.50 to $13.

Price increases on the various models are as follows: model 454, $5.50; model 604, $8; model 704, $9; model 854, $11; model P-604, $9; model P-704, $10.50; model P-854, $13.

## Air-Conditioning Studies Reveal How Employes' Health Is Improved

PHILADELPHIA—Studies of actual tests showing how employe health and efficiency have been improved by the installation of air-conditoning equipment are reviewed in "Improving Health and Reducing Employe Lost Time with Air Conditioning," a booklet published by the Philadelphia Electric Co.

Studies among office and sales workers were made in two large offices of the Philadelphia Electric Co., the main office at 1000 Chestnut St. and the new Kensington office at 1819 E. Allegheny Ave. Similar studies among factory workers were made in the American Tobacco plant at 6808 Greenway Ave., Philadelphia.

The first studies by the Philadelphia Electric Co. were made in the main office, where a complete air-conditioning system was installed on the main floor in June, 1931. This included the showroom where merchandise is displayed, the customer service station, the cashiers', and manager's office.

Comparison was made of 45 employes who had been in the office for one complete year before and one complete year after the air conditioning had been installed. Only diseases of the respiratory tract such as colds, grippe, etc., where the air breathed had a vital relation to good health, were considered.

A reduction of 33 per cent in lost time was found to have taken place during the first year of operation. Analysis for the second year of operation made in this group showed a reduction in lost time of 46 per cent.

In short, during the first year of operation, absences due to respiratory illness had been reduced from 3.34 days per person per year to 2.21 days per person per year. The second year of operation showed a further decrease to 1.79 days of absence per person.

Studies in the Kensington office of the Philadelphia Electric Co. were carried out along different lines. Here the air-conditioning system had been installed at the time the office was built and offered no opportunity to make before-and-after studies of employes.

It was, therefore, decided to compare health records of men and women employed in this office with health records for a similar office that was not air conditioned. Comparison was made with the Frankford office.

The lost-time analysis covered a period from September 1, 1932, to August 31, 1933. During this period absences due to colds, coughs, grippe, and other minor causes were found to

(Concluded on Page 8, Column 1)

## Elston D. Herron Finds Carbondale and Newark Dealers Have Their Troubles

By Elston D. Herron

Selling electric refrigerators in Newark and some other cities in northern New Jersey presents more problems than does the same business in many other sections of the United States.

Not only does the dealer for one line have to compete with retailers of other makes in his own vicinity, but he must exert himself constantly to keep prospective buyers from making the half-hour trip into New York City to purchase from outlets there.

Newark distributors will tell you of the pulling power New York has in Jersey—that New York papers, carrying a great deal of refrigeration advertising during the heavy selling season, have a circulation in Jersey as large as, or larger than that of New Jersey papers.

One distributor told us: "Jersey dealers compete with New York by meeting its retailers' prices, terms, and service agreements. Then they can turn their attention to competition at home."

Because of the keen competition for business in Jersey, a number of questionable merchandising practices have come into being, and several Newark distributors have recently turned their attention to forming an association to correct them, and also make a concerted drive on promotion of sales in that area.

## Distributors Plan State Association

Thomas Babson, sales promotion manager of Phillip H. Harrison & Co., Newark G-E distributor, told us how, several years ago, several distributors there organized an association, but at that time there was no occasion for frequent meetings, so the group dissolved.

About a year ago, however, some distributors again got together, formed the "refrigeration group" of the Essex Electrical League.

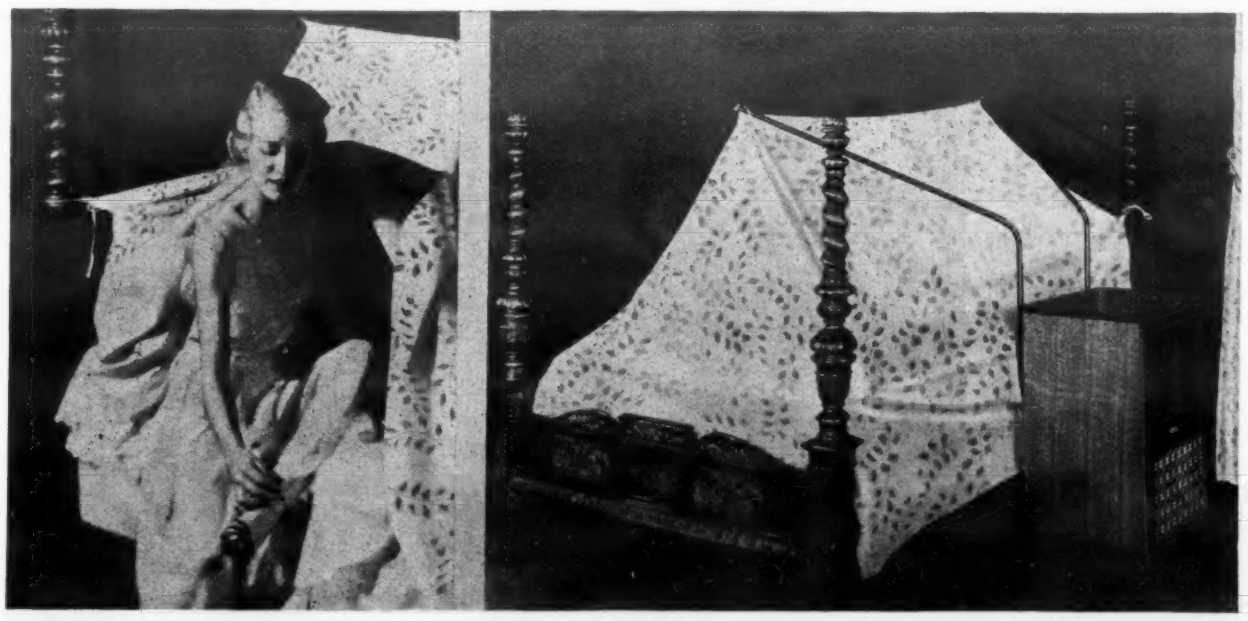
Now those distributors, said Mr. Babson, are planning to organize a state-wide association to promote ethical refrigeration merchandising throughout the whole area. Mr. Harrison is one of the leaders in the move.

Local electric refrigeration bureaus in various parts of the state have been asked to appoint delegates to a meeting at which the state organization will be considered. If it materializes, one of its first attacks will be made on price-cutting.

Kresge's department store in Newark is just starting to sell G-E's on

(Concluded on Page 2, Column 1)

## Crosley Finds a New Use for the Bed Canopy



For people who want cool comfort for summer sleeping, Crosley Radio Corp. is offering its "Coolrest" bed canopy with a self-contained air conditioner. Should the night become cool and air conditioning unnecessary the sleeper need only pull the tie-strings on the bed posts and push the canopy away.

# NEWARK DEALER NEWS

(Concluded from Page 1, Column 5)
the meter plan. Concerning it, Mr. Babson remarked:

"Of course some of our dealers have complained that it will hurt them, but our experience has been that dealers actually do more business after a store in their locality starts using meters. They work harder than they did before, and they benefit from the meter store's advertising on G-E."

In January and February, Harrison's business was 50 per cent ahead of last year, and increases in March and April (to the twenty-first, when we called) were even greater.

Reason for it, said Mr. Babson, is the generally improved economic condition in Jersey—for which no one factor is responsible. In Newark, department store sales have climbed, bus and street car traffic have increased for the first time in a couple of years, and building activity is showing signs of life.

Harrison company has just launched a spring-summer promotional program on all G-E appliances.

All its specialists, sales supervisors, and department managers are on the road, working on a schedule so that all of them will visit every G-E dealer in the territory at least once during the heavy season, to give him special help on their particular appliance or branch of selling.

## Average Retail Price Drops on Crosley Sales

Several weeks ago, ELECTRIC REFRIGERATION NEWS carried a story about the Apollo Radio Co., Newark Crosley distributor, ordering 40 carloads of refrigerators, making a total of 50 cars so far in '34.

Day we called there, Harold M. Bergman, sales manager, had just wired the Crosley factory for 21 carloads more. He thinks his 165 dealers will double last year's sales.

Early this year, average retail sale made by his dealers was about $145; since the season has got under way, that average has dropped to $130.

"The reason is," he said, "that people who buy in the winter are the ones who understand refrigeration's year-'round value, and don't pay so much attention to price.

"But buyers at this time of year are the ones who have just started to think about refrigeration because of warmer weather—the ones who want an electric refrigerator for the equivalent of what they would pay for ice each month."

One of the first things we heard at this company was talk about service. Good service is its specialty, and Mr. Bergman says it is the best goodwill-builder the concern has.

Within a 20-mile radius of Newark, the Apollo gives 24-hour service on all Crosleys sold by its dealers. It also makes twice-yearly inspections of all Crosleys in that area.

Inspection men employed by Apollo must follow this set of instructions:

1. Always greet courteously the person answering the door, and ask whether the person you are looking for lives there.
2. Inform them that you are from the Crosley service department, and have come to check their Crosley.
3. Make the necessary adjustments.
4. Inquire whether there is anything which they do not understand about the refrigerator, and explain all questions.
5. Explain the use of Tray Fre, and inform the owners of C and D Crosleys that they can obtain a bottle of Tray Fre from their dealer.
6. Inquire whether they know of anyone who would be interested in a refrigerator.
7. Always praise the Crosley service and Crosley merchandise.
8. Deliver a recipe book to owner if one is desired.
9. Never quote prices of refrigerators or parts unless instructed.
10. Be sure that the customer is acquainted with our day and night service, and that she has the emergency card.
11. Assure the customer that we aim to please, and that we are ready at any time of the day or night, every day in the year, to render the most competent service obtainable.
12. In order to make a nice appearance, it is necessary always to be clean and neatly dressed.

Low price and easy terms are what Newark housewives are looking for, said Mr. Bergman. Several Crosley dealers in the territory are selling refrigerators with meters, but the distributor isn't giving the practice any hearty approval.

"Meters are all right to use in January and February, when a dealer needs something special to promote sales," the sales manager opined, "and when the buyer will be needing refrigeration clear through the summer—so will have to keep up meter payments.

"But it's not so good to use meters in the spring and summer, when people would buy refrigerators anyway. It simply gives a lot of folks a way to have good refrigeration cheap while they need it most, then turn the box back when cold weather sets in."

## Krich to Use Cooking School Promotion

Krich Distributing Co., formerly the Gibson distributor in Newark, has dropped that line to wholesale Kelvinator in northern New Jersey. At present there is no Gibson distributor in the city.

Since it took on Kelvinator, the company has franchised 40 dealers to handle the line, none of them being former Gibson retailers, according to D. Wagman and Harry Krich.

The distributor is going to make extensive use of cooking schools in its dealerships this season, the men said. They consider these schools A-1 sales promotion stunts.

Eileen Knipping, the company's home economist, is just beginning a series of Kelvinator demonstrations in dealers' windows—chiefly to show the line's fast-freezing features.

In its five weeks as a Kelvinator distributor, the company has found its retailers' average sale price to be $180. Buyers: mostly in the $1,500-a-year class. The wholesaler expects Kelvinator sales to be five times greater than its Gibson sales in '33.

"Our dealers' biggest problem is that of overcoming prospects' interest in the five-year service plans offered by General Electric and Westinghouse," said Mr. Wagman.

He said that department stores in Newark do a big job on electric refrigeration. Griffith Piano Co. is selling Kelvinator on the meter plan. The Public Service Co. sells Kelvinator, but gets its merchandise directly from the factory.

## Kresge Sells Frigidaire On Meter Plan

January and February were slow months for the Frigidaire Sales Corp. in Newark, said F. C. Bernhard, products distribution manager, but March and April sales were far ahead of 1933.

He predicted that in April, Newark department stores would do the biggest refrigeration business in their history. Kresge's department store has for some time been selling Frigidaire on the meter plan.

## Binder Offers Three Services

An interesting combination of service, commercial and domestic refrigeration selling is the business of the T. W. Binder Co. in Newark.

Primarily, the company is service agent for Newark's Essex Distributing Co.—former Copeland distributor and now Sparton wholesaler—and does most of the service work on the 8,000 to 10,000 Copeland domestic refrigerators and 3,000 Copeland commercial jobs in Jersey.

Pending appointment of a Copeland commercial distributor in Newark, Mr. Binder is buying units from the factory, selling them in his territory.

His store is located at 25 South Orange Ave., on which street are scores of concerns selling used store fixtures, display cases, etc.

"I'm in a dandy location," said he, "because people come to this section to buy second-hand cases and refrigerators. Soon as they've bought that part of their equipment, it's handy for them to come here to buy a unit."

Commercial sales last year were few for Mr. Binder, but they have been good this season. "Storekeepers are cheerful again," he said. "Their business is picking up, and they're buying equipment they've needed for a long while."

The Sparton refrigerators he handles are last year's models. People shopping in his section are looking for merchandise at attractive prices and with old models, he can give it to them.

"I can't see," he remarked, "why more people don't go into the service business. If you do good work, you soon build up a steady clientele, and have a year-'round, if not a large, income. That's more than you can say for some kinds of selling."

Mr. Binder's brother, Ben Binder, is distributing Copeland in Trenton—his company's name being the Binder Electric Supply Co.

# Carbondale, Pa.

Carbondale, Pa., is an anthracite town. When its mines are working, its people have money to spend, and its merchants sell a lot of goods.

But during the past three or four years, most of the mines have been shut down entirely. Only a few were operated, and they on puny schedules. General business came almost to a standstill.

How this affected refrigeration sales is evident from figures released by the Scranton Electric Co., which supplies power in Carbondale.

The town, with a population of about 20,000, has 4,441 wired homes. As of March 31, 1934, there were 540 domestic refrigerators installed in those homes—a saturation of 12.2%.

Saturation was only 13 per cent in the entire area served by this utility—including the city of Scranton and a dozen or more towns surrounding it.

Now, however, some of the Carbondale mines are working again—have been since the first of the year—and local merchants are heartened as to the outlook for the remainder of 1934.

With things looking up as they are, more electric refrigerators might have been sold by Carbondale dealers if the weather hadn't been so cold. But the first warm days didn't arrive until we were there on April 23.

The utility report showed that only two household models went on the Carbondale lines during all of March, making a total of 11 for the first quarter of the year.

Scranton Electric Co. doesn't handle refrigeration—dropped it a couple of years ago—but still merchandises ranges and some other appliances.

## Frigidaire Commercial Business Best

The Fred L. Lang Co. in Carbondale is 100 per cent General Motors—Buick, Pontiac, and Frigidaire.

Wayne Doyle, salesman, said the concern took on refrigeration just four months ago, and has had an uphill pull "getting going" because the former Frigidaire dealer hadn't been entirely successful in keeping local Frigidaire users happy.

Now that spring has actually arrived, Mr. Doyle expects to close several sales within the next few weeks—unless, as he told us, "refrigeration prospects are 95 per cent liars, as car prospects are."

Commercial business has been much better than domestic, he informed us. Since January he has sold a milk-cooling job, and four units for food stores in and around Carbondale.

"Our refrigeration business this season won't come from miners," Mr. Doyle asserted. "They're paying old bills with the money they're earning.

"Our best prospects are those who still have some money in savings, and are willing to dip into it now, because times are better."

## Price-Cutting Nil, Bateman Reports

That price-cutting in Carbondale is almost nil was the statement of H. H. Bateman of Fulkerson's store, Norge and Grunow dealership.

The reason is, he explained, that all retailers in Carbondale know each other personally, have frequent conversations about their business, and can keep their selling clean of unethical practices because of that. They really have a dealer's association, without having formally organized one.

CWA was a real factor, besides reemployment in the mines, in putting some money into circulation in Carbondale, said Mr. Bateman. About 800 men were used on local projects.

## Stephens Anticipates Better Season

Although it considered its refrigeration business satisfactory last year, the Berry Furniture Store anticipates a better season this year. It handles Westinghouse.

"We believe this because more people than ever before have come in to look at refrigerators and inquire about prices," said N. F. Stephens, manager.

"People during the past few years have, in many cases, been unable to buy, but their refrigeration consciousness has grown just the same."

When we asked why all the refrigerators in the store were in the back of the room, when other dealers in town were showing models in their windows, Mr. Stephens said:

"We put refrigerators in the window only when they can be tied in with other parts of the whole display. We change displays regularly to spotlight furnishings for some particular part of the home. And summer or no summer, a refrigerator doesn't tie in very well with bedroom furniture."

Home Cut Glass & China Co., the Kelvinator dealer in Carbondale, has its display and sales quarters in the rear of the Crane dry goods store. W. C. Carter Co. sells G-E.


305 WOMEN CAME TO HEAR
The Leonard Story

This Plan Brings PROSPECTS into Leonard SHOWROOMS

LEONARD'S great floor selling plan swung into action in March, and from every section of the country, dealers are reporting its spectacular success in bringing interested prospects to their showrooms.

Pictured above is an audience of three hundred and five women in an Ohio city, brought together by following the plan that is available for all Leonard dealers. Of these women, 257 signed cards giving their names and addresses, and 205 owned no electric refrigerator. Think of it—205 actual prospects registering with a dealer in a day!

Can you afford *not* to know more about this plan, which brings prospects, product and salesman together in the dealer's showroom? Combined with the finest line and greatest advertising program in Leonard history, it is setting new sales records month after month.

Let us show you how it operates—what it is producing—in scores of territories like your own. Write or wire the factory. LEONARD REFRIGERATOR COMPANY, *14256 Plymouth Rd., Detroit, Mich.*

(662)

LEONARD THE COMPLETE REFRIGERATOR



ANSUL SULPHUR DIOXIDE is distributed from SEATTLE TO SAN JUAN

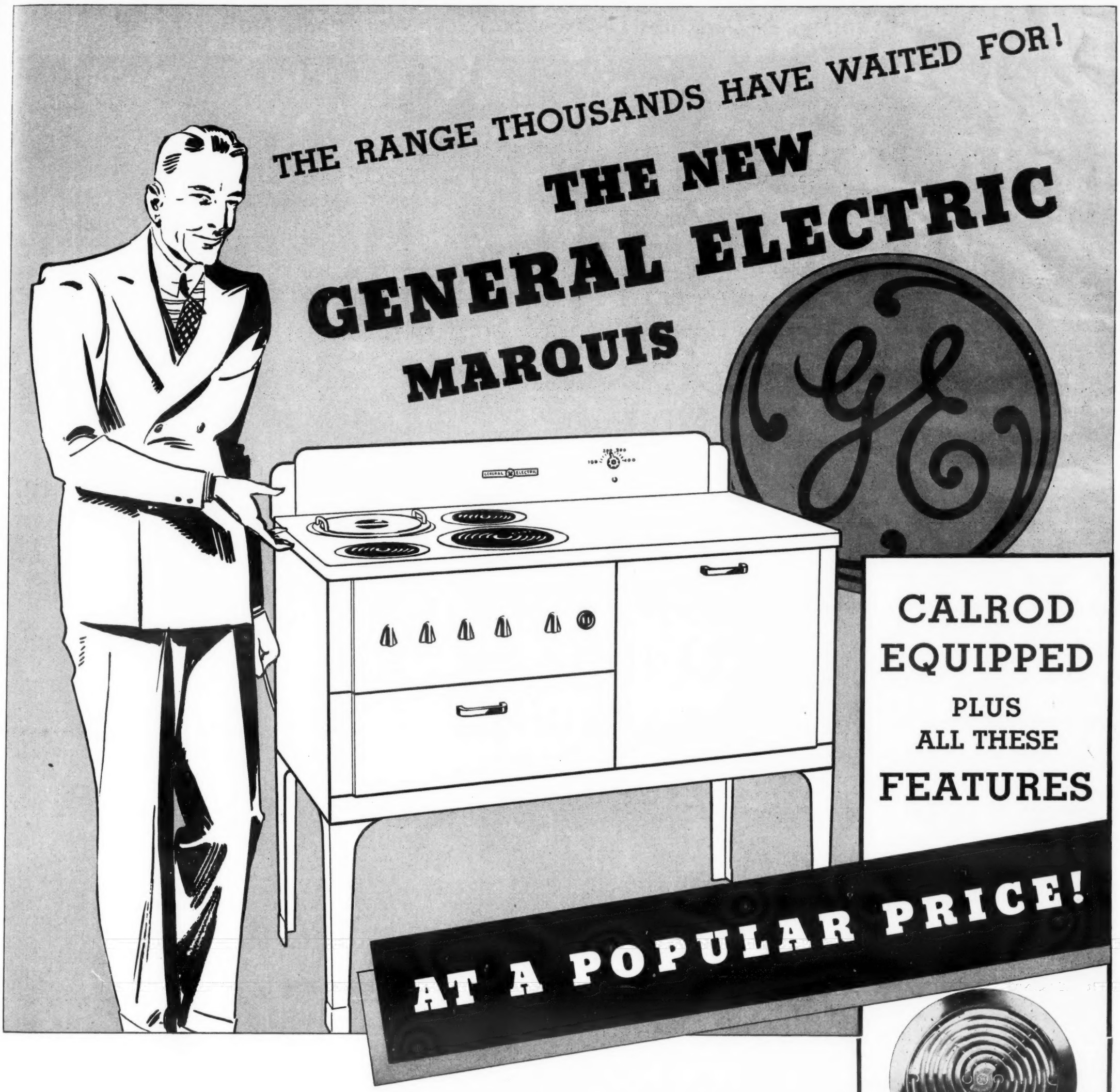
No matter where you are located . . . from Seattle, Washington to San Juan, Porto Rico . . . from Montreal, Quebec to Los Angeles, California . . . there is a warehouse near you carrying an ample stock of Ansul Sulphur Dioxide.

Write today for the nearest warehouse location and full prices.

• • •

ANSUL METHYL CHLORIDE, a product of low moisture and acid content, is available in any quantity, spot or contract shipments. Sizes of cylinders and complete prices will be gladly furnished.

ANSUL CHEMICAL COMPANY
MARINETTE - - WISCONSIN




## FIRST in Style • in Features • in Speed • in Economy

THE new low priced G-E Marquis range will go far in popularizing electric range cookery. Back of its development and perfection is the combined knowledge of famous research engineers of the G-E House of Magic and skilled home economists in the General Electric Kitchen Institute.

Beautifully modern in its new and efficient table top design, styled in harmony with the G-E Refrigerator and Dishwasher, the G-E Marquis offers quality, features and value to be found in no other popular-priced electric range. It is equipped with Hi-Speed CALROD, General Electric's million dollar heating unit that makes the G-E today's fastest cooking range! Calrod is far more durable than ordinary electric range heating units—impervious to the thumps and bangs of pots and pans and to the destructive forces of oxidization.

The new General Electric Marquis Range opens up a brand new sales and profit opportunity for G-E dealers. Over 1,500,000 homes now have electric ranges and the modern trend to electric cookery will create more and more prospects for you every day. If you are not already a G-E dealer, write or wire for complete information on this sensational new range and for details of the G-E franchise. General Electric Co., Specialty Appliance Sales Department, Sec. DF51, Nela Park, Cleveland, Ohio.

*Distinguished style joins matchless mechanism in the new General Electric refrigerators*

Hi-Speed *Calrod,* General Electric's million dollar heating unit makes the G-E today's fastest cooking range.

•

Rugged electrically welded *all-steel* body with gleaming white porcelain enamel exterior and acid resisting porcelain cooking top and work surface.

•

Hi-visibility automatic temperature control with heat indicator light.

•

Pebbled blue porcelain oversized oven with broiler pan and counter-balanced shelf type door.

•

Economical G-E Thrift Cooker with pudding pan.

•

Spacious drawer for utensil storage.

•

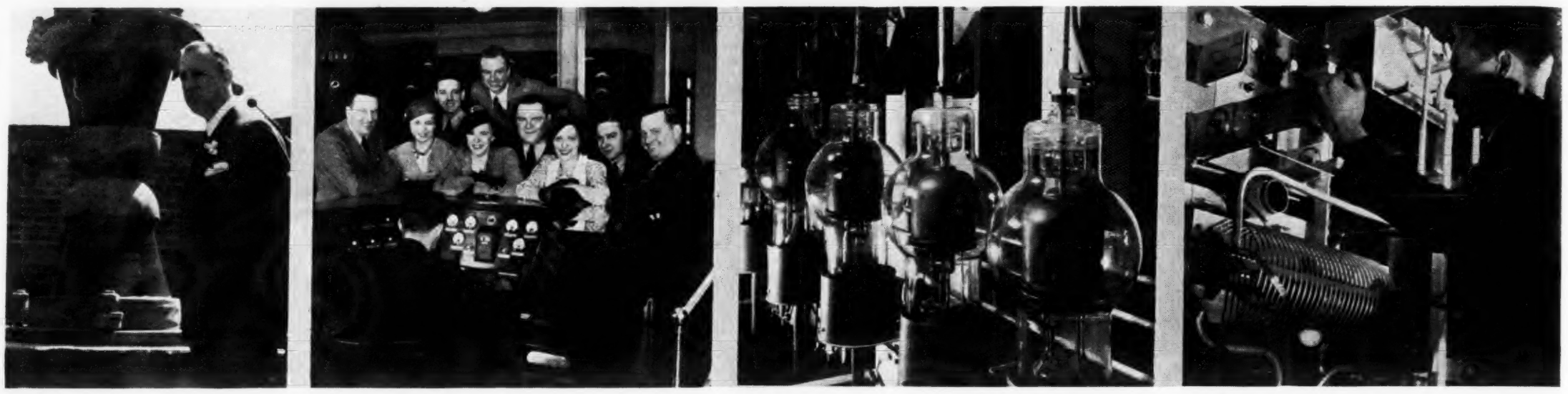
Bakelite switch buttons and door handles with stainless metal inserts.

•

Appliance receptacle, measuring cup, hot pan holders, "New Art" Recipe Book.

**GENERAL ELECTRIC** *Range*

# Powel Crosley, Jr. Dedicates His New 500,000-Watt Radio Station



(1) Powel Crosley, Jr., president of the Crosley Radio Corp. and operator of WLW, the world's most powerful broadcasting station, gives a final inspection to the base of the antenna tower for his new 500,000-watt transmitter. This base consists of two huge porcelain castings, and supports a tower which is taller than the Washington Monument. (2) WLW staff artists who contributed programs to the dedicatory ceremonies over the air. (3) A row of the mammoth mercury rectifier tubes. (4) Throwing the switch which turns on the power for the transmitter.

## Changes Proposed in Commercial Code

*(Concluded from Page 1, Column 4)*

is to be redefined to include self-contained commercial cases and coolers (those complete with mechanical refrigerating units).

Manufacturers are barred from combining quotations for any commercial refrigerator product with a quotation on any other material or service with the intent of concealing the true selling price of the commercial refrigerator product.

## Crosley Markets Air Cooled Bed Canopy

*(Concluded from Page 1, Column 1)*

the owner is ready to retire and pushed back into a corner in the morning.

The entire "Coolrest" assembly sells for $150, delivered.

Idea of the canopy is to make it possible for the sleeper to be comfortable in a conditioned atmosphere without the necessity of having equipment large enough to air condition the entire bedroom.

The condensing unit is located in the bottom of the portable conditioner cabinet, and is an air cooled model. Motor, compressor, and condenser are mounted on one base suspended by coil springs to eliminate vibration and noise.

In the top part of the cabinet are the cooling unit, fan, diffuser outlet, and return opening.

The specially designed fan keeps the air moving through the cooling unit and out of a round diffuser pipe which may be turned to throw the air into the canopy-enclosed space in any direction desired. The return opening is rectangular.

Cooling unit in the Crosley "Coolrest" unit is of rust-proof steel, and consists of a series of finned coils. Refrigerant temperature maintained in the cooling unit is about 40° F. The fan is located directly behind the cooling unit.

Water which is taken from the air by the dehumidification process is drained over the condenser, to aid in cooling it.

The control switch is located on the side of the compartment which is drawn up against the bed.

## Plans Started for TVA Advertising

*(Concluded from Page 1, Column 2)*

indicate that dealers displaying it are handling TVA approved appliances. Others will put over institutional messages.

The new emblem designed by the agency shows a blue hand clutching a red electrical bolt below which are the large TVA letters in red and "Electricity For All" motto in blue.

The emblem will serve not only as a trade mark for the general program of lower appliance and power prices, but it will also indicate that dealers displaying it have financial backing (one million dollars from the NRA and a credit advance from the RFC of 10 million dollars) for the financing of time sales.

A 12-page booklet is being prepared for educational work among consumers in the promotional area. It will be composed principally of pictures in rotogravure telling the story of Muscle Shoals, Norris Dam, etc., and pointing out its significance.

Two pages in the booklet will explain in ABC language how the program will affect the housewife.

Window displays are being developed, and Young & Rubicam, Inc., is cooperating in the development of permanent showrooms at Tupelo, Miss., Knoxville, Tenn., and Chattanooga, Tenn. These will be used for demonstration purposes, to sell the public on the idea of appliances.

One of the problems which the agency will attack is that of proper coordination of manufacturer sales promotion activities in the area with the educational work of the EH & FA.

## N.Y. Distributor Sets Uniform Price

*(Concluded from Page 1, Column 5)*

stipulated by the distributor shall be quoted by the dealers in selling to the public.

This agreement is predicated upon the National Industrial Recovery Act and the New York State act supplementing the NIRA in intra-state commerce. Judicial decisions upholding provisions of these acts in the celebrated New York State "Milk" case by the U. S. Supreme Court and in the recent "Spotless Dollar Cleaners" case decided in New York by Judge Knox of the U. S. District Court also influenced the new plan.

Merged with these legal principles in the agreement are others based upon trade-mark rights in general and upon decisions of the U. S. Supreme Court in price-maintenance cases.

Dr. Crichton Clarke, general counsel for the Alliance Against Frauds and a legal counsellor on re-sale price control says, with respect to this agreement:

"I am fully acquainted with the principles and details of the re-sale price agreements made by Bushwick & McPhilben Co. with its dealers and providing for uniform re-sale prices on Sparton products. In my opinion the plan is legal in every way, entirely in accord with the letter and spirit of the National Industrial Recovery Act and not repugnant to either the Sherman Anti-Trust Act, the Common Law, or any statutes of the state of New York."

## Terry Manages New Kelvinator Dept.

*(Concluded from Page 1, Column 3)*

Terry's supervision replaces Kelvinator's sales engineering department and includes all air-conditioning and commercial application work.

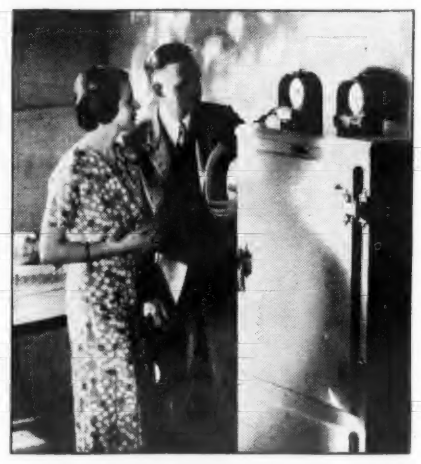
Mr. Terry began his engineering career with Westinghouse in 1919, engaging in domestic refrigeration apparatus development and research for six years. In 1926 he organized the refrigeration engineering department in the Westinghouse Mansfield, O., works, and managed the department until 1930.

In 1930 and 1931, he managed the same department in the firm's Springfield, Mass., plant, and during 1932 served as chief refrigeration engineer there.

Mr. Terry joined Kelvinator in September, 1932, engaging in commercial applications work in the engineering department.

## French to Retail Grunow Line in Montgomery

MONTGOMERY, Ala. — French's, Inc., has taken on the retail sale of Grunow refrigerators for Montgomery and the surrounding territory.

**Recording Instruments Tell the Whole Story**

Locate trouble, settle arguments, prove good operation with Practical Recording Instruments. The most inexpensive, practical and simple to use on the market.

Operation recorder shows operating time on a 4-inch chart over a 24-hour period. Price complete.... $21.00

Recording thermometers — accurate, foolproof. 24-hour record of temperatures is convincing to owners or prospects. Five temperature ranges, +30 to +60, +60 to +90, —20 to +40, +60 to +120, +40 to +100.
Price complete ..... $18.00

Prices are postpaid. Send check, order C. O. D. or write for complete information.

**Practical Instrument Company**
2713 N. Ashland Ave. Chicago, Ill.

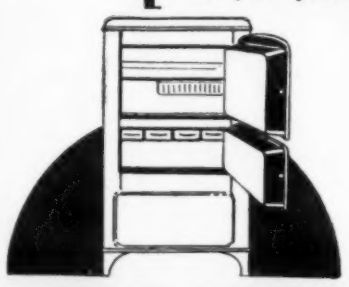


# How do YOU meet a Sales Situation like THIS?

WHEN
THE PROSPECTS YOU EDUCATED
CAN BUY COMPETITIVE MACHINES
ON THE RUINOUS "METER PLAN"
•
WHAT CAN YOU DO?

**POTTER OUTLETS HAVE THE ANSWER!**
***If you want to know what they do about it, write us and we will tell you! Let us tell you, also, about the Exclusive Potter Franchise.***

This is the 2nd in a series of Potter messages on meeting the problems which limit your profits. Number 3 will appear in the next issue of E. R. N.



**POTTER**
**REFRIGERATION CORPORATION**
**Buffalo, New York**

★ If you sold a Frigidaire every hour—24 a day including Sundays—it would take you 297 years to sell 2,600,000 of them.

And it would take you 114 years to sell the 1,000,000 Frigidaires that are in use today in excess of any other make of mechanical refrigerator.

Perhaps this gives you some idea of the public's overwhelming preference for Frigidaire. Perhaps it explains why the majority of prospects who come into your showroom have a predetermined desire for Frigidaire.

More people know Frigidaire than any other make. More prospects want it. More insist upon having it. More and more enthusiastic families are proudly saying, "Ours is a Frigidaire '34." And dealers who sell it are doing more business—making more money.

If you'd like your customers to join in this great chorus—"Ours is a Frigidaire '34"—just write to the Frigidaire Corporation, Dayton, Ohio.

*FRIGIDAIRE*

A PRODUCT OF GENERAL MOTORS

# AIR CONDITIONING

## Hay Fever Victims Big Market for Air Cleaning Equipment

GRAND RAPIDS, Mich.—Salesmen will find that in the ranks of hay fever sufferers they have a ready market for air-conditioning equipment, thinks R. L. Leigh, chief engineer of the Grand Rapids Die & Tool Co., blower manufacturer here. Number of these prospects is large, and with them, the need for air purification is already established.

Removal of pollen from the air is important to these individuals, he says, and may consequently be spotlighted to advantage in sales presentations. Furthermore, pollen-removal equipment is easy to install, does not require difficult calculations.

Three fundamentals must be adhered to, however, in incorporating this equipment into an air-conditioning system, the engineer asserts.

First, there must be adequate filters and filter area. Second, there must be a blower of sufficient capacity to overcome resistance of the filters and give frequent air changes. Third, there must be a certain amount of outside air taken in to build up a pressure within the room or building, and so prevent infiltration.

"It is wise," he states, "to use viscous filters of the 'throw-away' type. They should be double-spaced, with at least 2 in. between them. There should be filter area sufficient to limit the air velocity through them to 350 ft. per minute."

In a typical installation, Mr. Leigh says, outside air is taken from a basement window and forced through the filters along with recirculated air. Size of the pipe is unimportant, as the amount of outside air drawn into the system will be automatically controlled by the amount of air space around windows, house construction, type of windows, etc. The pipe may be closed when the system is used for winter heating.

All air is blown through the filters, both new and return air coming together before being forced through the filters. The latter, in many cases, can be staggered to conserve space. A system of this type will remove 99 per cent of the pollen.

## *Carrier Appoints 15 New Air Conditioning Dealers*

NEWARK—Fifteen new air-conditioning dealers have been appointed by the Carrier Engineering Corp. since Jan. 1 of this year. They are as follows:

O. E. Lewis Co. and Air Control Engineering Co., New Orleans; Ticmarsh Engineering Co. and Glover & Clark, Tucson, Ariz.; Paul E. Gutfleisch, Lancaster, Pa.; Smith & Pearson, Auburn, N. Y.; Marine Specialty Co., Inc., Mobile, Ala.; Tuschen Bros., Hartford, Conn.; Townsend & Dodge, Oklahoma City; Wallich Ice Machine Co., Detroit; Power Engineering Corp., Wilkes-Barre, Pa.; Carley Co., Los Angeles; W. F. Slater Engineering Corp., Memphis, Tenn.; Fuel Oil Equipment Co., Miami, Fla.; H. E. Goodling Electric Co., York, Pa.

## Bright Designs Three New Ice Coolers

DETROIT—Three new ice comfort coolers are being made by the Motors Metal Mfg. Co. here, feature of two of them being an electric heating unit for use during the spring and fall. Last year, this company was in production on a single model. All were designed by the George B. Bright Co. of Detroit.

The Komforte Koolaire introduced last year and continued this season is a portable unit, while the three new models are semi-portable—must be connected with a water drain by hose, flexible tube, or permanent pipe.

Model 200, one of the new units, has an approximate ice capacity of 200 lbs., is 15 in. wide, 27 in. long, and 51 in. high. Its melting capacity is 25 to 30 lbs. per hr.; it is suitable for a room of from 1,500 to 2,000 cu. ft.

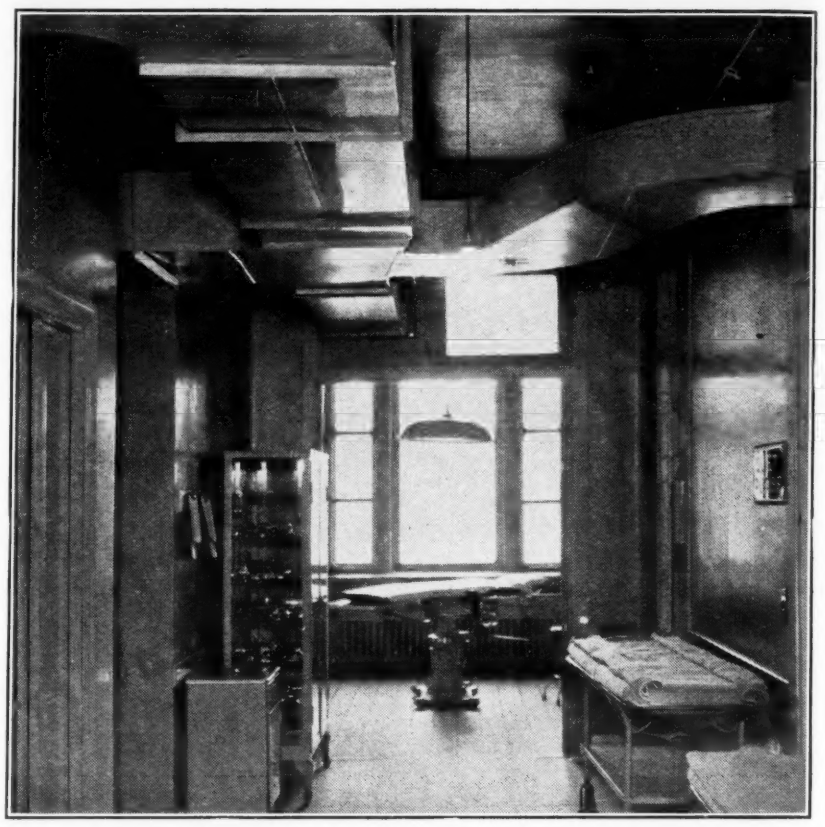
Model 300 is 19 in. wide, 27 in. long, and 51 in. high, and holds approximately 300 lbs. of ice. It melts between 35 and 40 lbs. of ice per hr., and is suitable for use in rooms of 2,000 to 3,000 cu. ft.

Third is model 600—19 in. wide, 50 in. long, and 51 in. high. Its capacity is 600 lbs. of ice, and its hourly ice-melting capacity is 75 to 80 lbs. It is intended for use in rooms of from 6,000 to 8,000 cu. ft.

Models 200 and 300 have a spray device suitable for admitting city water for cooling during the spring and fall months, when ice is not used. Also, they have an atomizer for humidification in winter.

These same models have an electric heating device which may be used to break the chill in a room or office when the heating plant is not yet in operation. The heating element's current consumption varies from 800 to 1,200 watts. All models are available in olive green or walnut finish.

## *Air-Conditioned Operating Room*



On the hottest days when Norfolk swelters under a Virginia sun, this operating room in the Norfolk Protestant Hospital is kept cool and comfortable by Frigidaire air-conditioning equipment. Ducts carry the cooled air to all three rooms leading off a central hallway.

* * *

## *Patients Withstand Operations Better In Air-Cooled Operating Room*

NORFOLK, Va. — Air conditioning is very helpful with patients undergoing an operation, observations at the Norfolk Protestant Hospital here, have shown. Patients withstand the surgical shock much better and they rally far more quickly when the room is kept at a comfortable temperature and humidity.

Since the installation of air-conditioning equipment a little more than a year ago Miss Ruth B. Epperson, who is in charge of the operating room, has been making a careful study of surgical patients, noting their condition while under the influence of anaesthesia and then the effect after they have recovered consciousness.

She has done this because she has been particularly interested in the use of air conditioning and because she was convinced that the enervating atmosphere that is encountered in the Virginia seaport during the summer was sapping the vitality of patients and lowering their chances for a successful operation and a speedy recovery.

### Duct System Used

The surgery of this hospital consists of three rooms, with a central hall leading into one room, and the other rooms on each side of the hall.

It was decided to install a duct system, with the compressor away from the rooms, where there could be no possible chance of a friction spark from the moving parts igniting anaesthesia gases.

The air-distributing system includes a duct leading along the main hall and into each of the operating rooms, so arranged that the rooms might be air conditioned and ventilated quickly. Frigidaire equipment was installed.

The effect was noticeable immediately, not only on the patients but on the doctors and nurses comprising the hospital staff, according to Miss Epperson.

"Not only did the air-conditioning equipment add to the comfort of the doctors and nurses during their work, but it had a marked effect, due to the lowered humidity, on the condition of the patient throughout the operation," says Miss Epperson.

"In addition, we notice that it clears up any odors that may accompany an operation. Since installing this equipment, we have noted a greater degree of efficiency on the part of those working in the operating rooms, due to the increased comfort.

### 12° Temperature Differential

"During the warm summer months, we were able to maintain a temperature difference of at least 12 degrees on an average.

"We use the air-conditioning unit even during the winter months in order to bring the rooms down to the proper temperature quickly. The temperature of an operating room should be between 70 and 80° F."

## *New Westinghouse Range Approved by TVA*

MANSFIELD, Ohio—The Tennessee Valley Authority has approved the new Westinghouse model TV-63 electric range for financing through EF & HA in the Tennessee Valley area, according to Reese Mills, manager of the range and water heater department.

The new range uses the maintained heat principle for cooking and is finished in a light neutral grey color. Console design is well proportioned and will be available in right- and left-hand models.

The oven includes two 1,500-watt heating units. The platform has three units, two of which are 61-in. 1,000 watts, and one 8-in. 1,800-watt unit. The total input of the range is 6,800 watts.

An unusual feature is that the appliance outlet and a polarized timer receptacle are shipped as accessories for field installation.

This range is designed for Edison 3-wire, 115 or 125 volts, 50 or 60 cycle service.

## *Philadelphia Utility Promotes Sale of Air Conditioners*

PHILADELPHIA—As it has done in previous years on other types of equipment, the Philadelphia Electric Co. now has a promotional activity in progress on store, restaurant, and industrial air conditioning, according to J. F. Gaskill, manager of industrial sales.

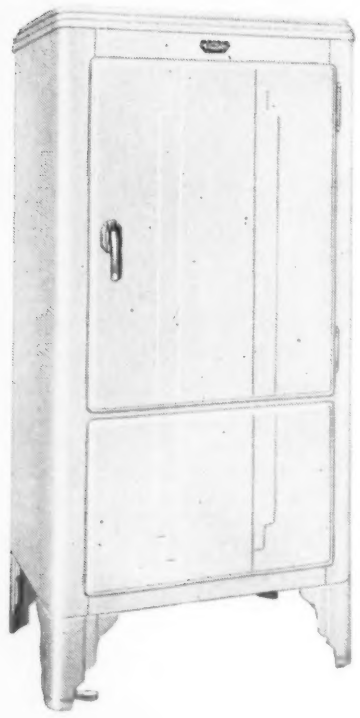
Under the plan being used, direct-mail pieces, personally addressed, are sent to a selected list of prospective air-conditioning users. The literature is mailed in geographic groups at intervals of one week between the several pieces.

One week following the second piece, a representative of the utility's industrial sales department calls on the prospect to offer the electric company's engineering service on air-conditioning problems.

"Good" prospects' names are then turned over to air-conditioning sales organizations, who cooperate in the promotional work, for closure.


# 32 ways to make an ICE-O-MATIC sale!

## *You'll deliver more and make more with Ice-O-Matic*

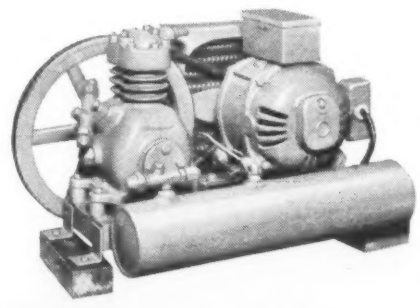


First tell your prospects about the 31 outstanding features of Ice-O-Matic—five of them brand new this year—a combination of advantages not matched by any other refrigerator. Then—*clinch the sale* with *Duo*power—the revolutionary new feature which means swifter cooling—less running time—even longer life. And this added to a remarkable performance record—the first Ice-O-Matic ever built has been running continuously for the equivalent of 20 years home service. It has never stopped—even for oiling.

And in addition to *Duo*power there are five big new "talking point" features—foot-pedal door opener, wear resisting Dulux enamel finish, centrally located cooling unit with greater bottle space, "Free Wheeling" door latch, and modernistic, skyscraper cabinet design.

Ice-O-Matic also makes a full line of commercial refrigeration at attractive low prices for grocers, butchers, restaurants, florists, etc.

The coupon or a telegram will bring you complete and really interesting details of the Ice-O-Matic distributor's franchise arrangement. Write to Williams Oil-O-Matic Heating Corp., Bloomington, Ill.



The new Ice-O-Matic Model "T" compressor which delivers double power. The motor runs for shorter periods when the cabinet needs cooling. This cuts down wear—and in addition a more even temperature is maintained—for the cabinet is cooled much more rapidly.

WILLIAMS ICE-O-MATIC REFRIGERATION

WILLIAMS OIL-O-MATIC HEATING CORP.,
Ice-O-Matic Division, Bloomington, Ill. ERN-5-9

Please send me full details of the 1934 Ice-O-Matic Line and Franchise.

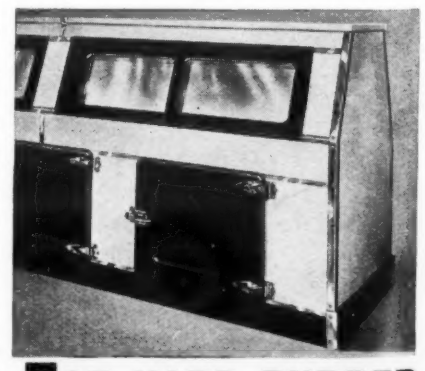
*Name* .....

*Address* .....

*City* ..... *State* .....

*Present Business* .....





ICE HARD RUBBER
*Hinged and Sliding*
REFRIGERATOR DOORS
Door Frames, Slide Rails, Jambs, Glazing Strips, etc. Standard and special sizes.
*Send for catalogue and prices*
AMERICAN HARD RUBBER CO.
11 MERCER ST., NEW YORK, N. Y.
Akron, Ohio
111 W. Washington St., Chicago, Ill.

# Air-Conditioning Grilles Must Diffuse and Direct Air Flow

By J. A. Germonprez, General Manager, Uni-Flo Corp.

ONE of the most important problems that the air conditioning sales engineer has to contend with today, is the proper distribution of air. Until recently but little serious thought had been given this subject, with the result that many installations were far from being satisfactory, resulting in a number of dissatisfied customers.

### Low Velocity Air Discharge

In the past we were content to use grilles of large areas, using low velocity discharge, and almost any means for covering the opening in the wall. Using a piece of metal with holes in it was considered satisfactory for the distribution of air.

The public, however, has become air minded and is demanding cooling as well as heating comfort. This brings about a new problem for the sales engineer which, due to the lack of necessary equipment to diffuse and distribute air evenly within a room, has sometimes been a handicap.

### Diffusion Air Flow

In studying this problem, our research staff came to the conclusion that grilles of a type which diffuses and directs air flow would be highly satisfactory for comfort cooling.

Grilles as used in the past (and we will take for example the well known conventional square mesh design) caused the air, when passing through these square openings, to set up a turbulent action directly behind each bar which makes up its facial design, resulting in a formation of a series of air swirls or eddies.

These were so shaped that they compressed the air passing through these square openings, with the result that only about 65 per cent of the opening was effective for the emission of air. This blast of air, of pencil beam shape, penetrated the room in the form of a straight-out flow of air and with little or no diffusion, resulting in poor air distribution.

When refrigerated air is discharged through this type of grille, further difficulties are encountered, namely that of shorter distance of air travel, plus the low velocities that have to be used in order to prevent air noise. Both of these factors are very important in present day installations.

Distribution of warm air within a room is much simpler than of refrigerated air, although the distribution and diffusion factors apply in both cases. Therefore, we will confine our discussion to refrigerated air discharge from grilles.

### Design of Grilles

We have designed our grilles so that the air is separated into thin ribbon-like sheets, and by the aid of variable shaped diffusers formed on the edges of the fins, the air is diffused and thrown out of equilibrium, causing it to come in contact with the adjoining air streams. This imparts a variable rolling action to the discharged air immediately leaving the face of the grille.

This causes the refrigerated air to mix very rapidly with the surrounding room air, resulting in rapid expansion of the mixed air, and raises the temperature of the mixed air a short distance from the face of the grille.

This rapid expansion helps to induce room air movement—at the same time causing an asperating effect at the face of the grille which lightens it, imparting additional momentum which causes it to travel farther.

Grilles should not be set too close to the ceiling, or this rapid expansion of the refrigerated air will cause a pressure area at the ceiling, and cause the discharged air to be deflected downward — resulting in a short distance of air travel.

With the diffusion taken care of, the next problem became one of distribution. We found that by the use of various angles of grille core, placed in combination within one frame, that almost any width of air spread could be obtained.

For example: With a one-way air flow grille of a size 30 in. long by 6 in. high, and a discharge velocity of 800 ft. per minute, we obtain an 8-ft. air spread of only 25 ft. from the face of the grille. However, with a 3-way air flow grille, we get a 20-ft. spread, and with a 5-way air flow we get a 36-ft. spread, so that the center-to-center distance of the grilles can be pre-determined and more satisfactory results obtained.

Now that we have the problem of diffusion and width of air spread taken care of, we still have the problem of distance in which the air has to travel to meet the room requirements.

It is desirable to control the velocity of air discharge so that when it strikes the wall at opposite side of the room, it does not exceed 25 ft. per minute. This precaution is necessary to avoid objectionable drafts.

### Grille Sizes

Grille size and design are very important points in distribution of refrigerated air.

Taking, for example, the design and size as has been considered good practice in the past, we find that with a large size square mesh grille, and the accompanying low velocities that have to be used (due to the noise factor), the cold air is only pre-tempered *along its edges.*

The center section of the grille discharges the raw, cold, untempered air into the room, where, due to the low velocity discharge, lack of diffusion, and lack of proper distribution, it drops to the floor in this state a short distance from the face of the grille.

Nowadays, the tendency of the engineer is toward higher velocities and the use of long narrow grilles of the directional air flow and diffusion type.

### Noise

Our present design of grille is used extensively for high velocity discharge, as it only registers 35 decibels of noise at 1400 ft. per minute velocity, which is equivalent to the noise in the room of an average resident. Velocities as high as 2,000 ft. per minute air discharges through our grilles are used for store installations.

When air flows from our new directional diffusion type grilles, it is diffused and flows in five different directions forming the shape of a fan, and by means of an adjustable grille damper, this five-way fan shaped stream of air can be directed upward 10 degrees for refrigerated air control, or 10 degrees downward for warm air control.

Another new development is the new circular discharge outlet, featuring controlled asperation and volume. When refrigerated air flows into this outlet, it passes over a curved surface, which creates a vacuum at its outer edge, causing room air along the ceiling to be drawn into the grille at the top to be re-mixed with the cold air flowing into the grille chamber, in this way helping to pre-temper the discharged air.

The same induced room air action is created at the bottom of the grille by means of a curved surface provided for at the outer edge of the adjustable cone shaped damper.

The damper may be raised or lowered to increase or decrease the air volume or asperating effect of the grille.

The air flow from this ceiling discharge outlet is a thin, circular stream, and travels along the ceiling in a rolling manner, feathering off particles as it travels along its course to the walls. A light can be worked in combination with it so as to make it more practical for office use.

## York Gets Out New Book On Air Conditioning

YORK, Pa.—"Air Conditioning by York" is the title of a new 11½ by 14-in. loose-leaf book published by the sales promotion department of the York Ice Machinery Corp. under the direction of J. M. Rosenmiller, sales promotion manager.

The book contains all the recent literature published by the company on various air-conditioning applications, and is intended as a stimulus for new dealers in York's commercial division.


"TRICKS IN ALL TRADES," SAYS BILL

THERE ARE A LOT OF THINGS I LIKE ABOUT IT — BUT I DON'T KNOW --
YES, MADAM, IT'S ONE OF OUR MOST POPULAR MODELS.
AND HERE'S ANOTHER OF OUR BIGGEST SELLERS.
WELL — I'M NOT SURE. I DON'T BELIEVE I'LL DECIDE TODAY.
BUT JUST ONE MOMENT, PLEASE, MRS. JONES. LET ME SHOW YOU THIS ONE. IT'S EQUIPPED WITH FLEXIBLE RUBBER TRAYS AND GRIDS.
OH! THAT IS INTERESTING!
YOU SEE? ICE CUBES POP RIGHT OUT — ONE AT A TIME OR THE WHOLE TRAYFUL. NO POUNDING OR SPLASHING AT THE KITCHEN SINK.
THAT'S EXACTLY WHAT MY HUSBAND HAS BEEN TALKING ABOUT.
YOU SAVE ABOUT 25% OF ICE, TOO. YOU LOSE SO MUCH WHEN YOU MELT CUBES OUT OF OLD-FASHIONED TRAYS.
THAT'S RIGHT! I THINK I'LL TAKE THIS MODEL. CAN YOU SEND IT OUT TODAY?
CHIEF, THOSE FLEXIBLE RUBBER TRAYS ARE THE BERRIES WHEN IT COMES TO MAKING SALES. I'D HAVE LOST AN ORDER THIS MORNING IF I HADN'T SHOWN 'EM.
YOU'RE TELLING ME? HOW WELL I KNOW!
ICE CUBES POP RIGHT OUT

SELLING IS EASIER

when refrigerators are equipped with Flexible Rubber Trays and Grids

Of course it's possible to sell automatic refrigerators that aren't equipped with Flexible Rubber Trays and Grids.

But it's a lot *harder.* And it's getting harder every day. That's because people are no longer content to put up with the inconvenience of old-style trays. They're demanding that the refrigerators they buy have the time, temper and trouble-saving convenience of Flexible Rubber Trays and Grids.

In fact, this demand has become so great that 2,700,000 have been sold *—more than a million last year alone!* And in 1934 the demand will be speeded up still more by dramatic, forceful and attention-getting advertisements in leading National Magazines.

Is it any wonder Flexible Rubber Trays and Grids are now used as standard equipment by all leading refrigerator manufacturers?

Write today—to the manufacturer of your refrigerator or direct to us—and get full details about these new money-makers. And be sure to stock Flexible Rubber Trays and Grids without a moment's unnecessary delay. There's real money in them. The Inland Manufacturing Company, Dayton, Ohio.

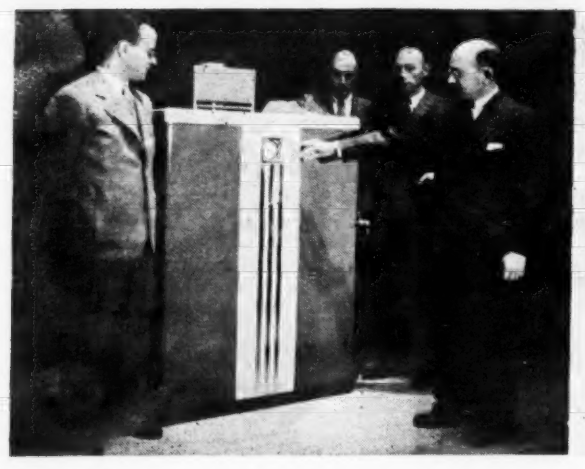
INSIST

*It will pay you to insist that Flexible Rubber Trays and Grids be included as standard equipment in all the refrigerators you sell. By so insisting, you'll sell* more *refrigerators—and sell them* easier.

Flexible Rubber Trays and Grids

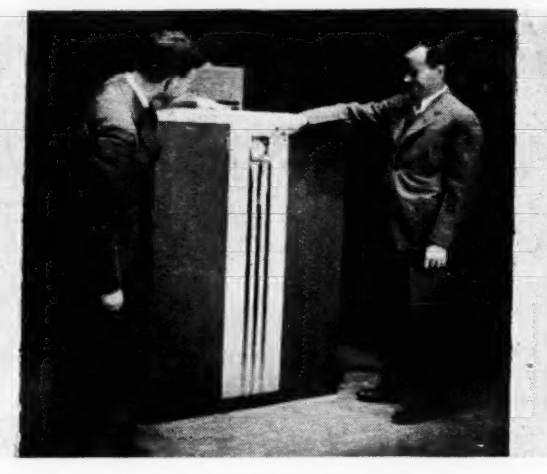
ICE CUBES INSTANTLY — TRAY TO GLASS

# General Electric Shows Its Gas-Fired Furnace to Dealers



H. B. Smith discusses the new G-E gas furnace before Joe Donovan, Elliott Harrington, and Earl Opal, all of the G-E air-conditioning department.

A. C. Roy telling G-E air-conditioning dealers how to use the sales promotion literature prepared by the air-conditioning department.



Walter Bowe, advertising manager of the G-E air-conditioning department, gets some sales points from Joe Donovan.

Joe Donovan, manager of the G-E air-conditioning department. Pictures taken by John T. Schaefer.

## AIR CONDITIONING

### Employe Illness Reduced by Air Conditioning, Utility Report Says

*(Concluded from Page 1, Column 2)*

be 56 per cent less at the air-conditioned office than at the office which was not air conditioned.

Taken together, the two air-conditioned offices showed an average decrease in lost time of 45.4 per cent. This reduction when applied to the general commercial average of 5.25 days lost per employe per year due to minor illnesses, and evaluated at $5 per day represents a potential saving to industry of $11.90 per employe.

This saving is equal to approximately one half of the average owning and operation cost of an air-conditioning system. In the average office installation the cost of owning and operating air conditioning is $24 per employe per year.

Here are details of the costs, as taken from records of the Philadelphia Electric Co.:

| **Average Cost for an Office of 6,000 Sq. Ft.** | |
|---|---|
| Installation cost | $10,000.00 |
| Interest and depreciation (15 yr. life) | $986.00 |
| Operating cost | 934.00 |
| Owning and operating cost | 1,920.00 |
| Owning and operating cost per sq. ft. | .32 |
| Owning and operating cost per person based on 75 sq. ft. per person | 24.00 |

Office workers, statistics show, stay away from work through illness more than other groups.

Florence A. Grant, librarian of the Fleischman Co., published the following statistics:

"A large department store made the surprising statement that absence among its office workers was two per cent higher than the average for the store. One office with 200 employes reported that over a period of three years, after eliminating cases of long illness, the average monthly absence due to illness was .18 days for men and 149 days, nearly half a day per month, for women. Their record shows that 76.4 per cent of absences among men, and 84.9 per cent among women are due to illness.

"An insurance office of 200 reported a record of two absences per year, totaling about three and a half days for each employe. A large railway system had an absence record for a year of 3,479 days, nearly seven days per employe, which they valued at $10,000 plus the preliminary and convalescent inefficiency of the worker."

Air conditioning is producing results in increasing efficiency among employes in industrial fields, it is evidenced by studies made in the Philadelphia plant of the American Cigar Co., where all year 'round air conditioning has been installed.

The studies were made to try to evaluate the benefits of air conditioning during the summer months and to find out whether the savings were sufficient to offset the installation and operating costs.

Benefits derived from the installation of the equipment far exceeded expectation. Not the least of these benefits had to do with reduction of lost time among workers, lessening of labor turnover, and increased efficiency. Beside the individual savings resulting from each of these benefits, there was an increase in production worth thousands of dollars.

Under normal summer conditions without air conditioning, an average of 50 girls per day for 75 days would become sick or indifferent to their work and would work one half day, leaving at noon.

**Summer Production Increased**

Further, due to the discomfort, many girls would leave their employ and obtain work as waitresses, etc., at summer resorts.

After complete air conditioning was installed, it was found that the lost time was reduced from an average of 50 girls out one half day for 75 days to an average of five girls out one half day for 75 days.

Labor turnover was reduced by 100 girls during the trying hot season, materially decreasing training expenses.

In addition more comfortable working conditions increased the efficiency of workers to such an extent that rejects were reduced from between 3 and 4 per cent to between 0.5 and 1 per cent.

Under normal summer conditions, due to temperature and humidity conditions in the plant, production would fall off from 4,000 cigars per machine per day to 3,600 cigars per machine per day, a decrease of 10 per cent in production.

With complete air conditioning, instead of production falling off to 3,600 cigars per machine per day, the machines would be worked at full capacity and produce 4,000 cigars per machine per day.

**$23,371 Profit Results**

Summarizing, the gross savings made from reduction in lost time, reduction in labor turnover, reduction in rejects, and increase in production, amounted to $29,546 per year. Since the total owning and operating cost of the added air conditioning was $6,174.50 per year, there was an outright profit of $23,371.50 per year.

Also covered in this booklet is a review of the benefits which sufferers from hay fever have derived from the installation of air-conditioning equipment, the results of experiments conducted by Dr. Leslie N. Gay at Johns Hopkins hospital being summarized.

### Carrier System Keeps Air Cool in Phoenix Hotel

PHOENIX, Ariz.—With outside temperatures of around 112° F., air-conditioning equipment maintains temperatures of between 78° and 80° F. in the bedroom suites, main dining room, ballroom, and parlors of the Westward Ho hotel here. The air cooling is accomplished by a Carrier spray system cooler and humidifier.

Refrigerating equipment consists of a Carrier refrigerating machine with 180 tons of capacity and powered by a 250-hp. motor.

Temperature of water in all sprays is 48° F. to 50° F. Air leaves the dehumidifiers at 60° F. It is taken to the bedrooms by a blower using a 40-hp. fan, to the ballroom, main dining room, and parlors by a blower using a 20-hp. fan. All fans are the Buffalo type.

### Norge Refrigerators Get Into the Movies

DETROIT—Norge household refrigerators will make their appearance in two Hollywood motion picture productions.

The Norge models will be seen in the Goldsmith production, "I Hate Women," featuring Wallace Ford and June Clyde, and in the Monogram production "The Loud Speaker," featuring Ray Walker and Jacqueline Wells.

### Ilg Builds Unit & Multiple Coolers

CHICAGO—Ilg's 1934 line of air-conditioning equipment ranges from self-contained Ilg spot coolers to the larger Ilg-Kold systems, using a number of cooling units in conjunction with a centrally located compressor.

Three models of Ilg spot coolers are offered. All are self-contained units, the compressor being located in the base. All three models serve to cool, dehumidify and recirculate the air.

Model 10 has one-half ton of refrigeration cooling capacity, and requires only a light socket connection and a water connection. Model 20 with one-ton cooling capacity uses water and requires a power line connection. Model 30 has an air-cooled condensing unit, and requires only power line and outside air connections.

Other Ilg air-conditioning equipment includes cabinet-type units, with remotely installed refrigerating machines. These cabinet units can be obtained for cooling and dehumidifying only, or for complete year 'round air conditioning, which includes, in addition to the functions named above, heating, humidifying and filtering.

Ceiling-type cooling units for use with central system are offered for installation in stores, large offices, and similar establishments.

### Auditorium System Used In Laredo Hotel

LAREDO, Texas — Wm. A. Ebert, agent for Auditorium air-conditioning systems, reports the installation of air conditioning in the coffee shop of the Laredo Plaza Hotel here. M. L. Diver of San Antonio was engineer, and equipment was furnished by the Yorke Ice Machinery Corp.

The Laredo Plaza Hotel is the first air-conditioning installation in Laredo, and is claimed to be the only hotel south of San Antonio to have air conditioning.


HOUSEHOLD ELECTRIC REERIGERATION by

# A QUALITY LINE TRUSCON MODERATELY PRICED

BUILT BY WORLD'S LARGEST FABRICATOR OF STEEL PRODUCTS

Fabricators of every kind of quality steel products for the past 30 years—possessing seven huge plants throughout the United States and Canada—strongly financed—and powerfully entrenched in public confidence, Truscon now enters the electric refrigeration field under the most favorable auspices. Truscon offers a line of the finest electrical refrigerators, modestly priced, on the market today. And with them a franchise of high and enduring value. Write today for catalog.

FEATURING - - -

**BEAUTIFUL LINES**—Beautiful cabinet work and appointments.
**SILENT OPERATION**—Modern, tested efficient Universal unit.
**FOOT PEDAL**—For convenient door opening.
**ELECTRIC LIGHT**—Lights automatically when door is opened; shuts off when door is closed.
**"STAY-COLD" DEFROSTING**—Refrigerates even while defrosting.
**FAST FREEZING**—A dial control for fast freezing when wanted.
**ROUND CORNERS**—Interior is of one piece, with rounded corners permitting easy cleaning.
**RUBBER TRAY**—Flexible, odorless, tasteless. Permits easy removal of cubes.
**NO STOOPING**—Food compartments and shelves at convenient level.
**ICE COMPARTMENT DOOR**—Prevents food odors affecting purity of ice cubes.
**ACID-RESISTANT PORCELAIN**—All interiors are heavily coated with porcelain, not affected by fruity acids.
**EVEN TEMPERATURE CONTROL.**
**HARMLESS REFRIGERANT**—Hermetically sealed in.
**LUBRICATION**—Two oil cups filled once a year.

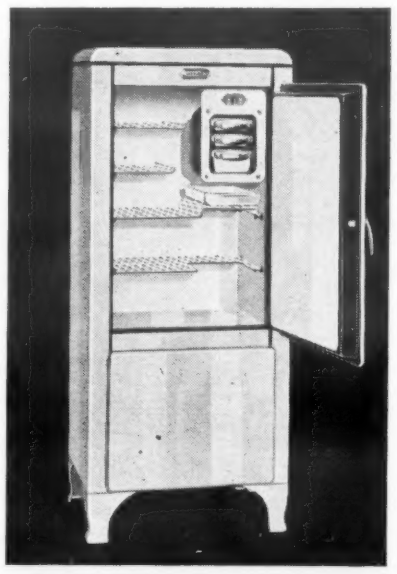
Desirable territories available for the right kind of distributors and dealers—Write for details on franchise proposition.

TRUSCON STEEL CO.
*Electric Refrigeration Division*
CLEVELAND - OHIO



COPELAND HAS EVERYTHING

Style—Performance—Price—Discounts
plus Tremendous Popular Appeal



MODEL P 604

If we alone were saying this, the story would not be so convincing. Our distributors do the telling, *with orders.*

Every day brings an avalanche of orders for Household Refrigerators. There are seven popular models in our 1934 line.

Distributors of Commercial Condensing Units like our complete line of 21 different models and orders pour in daily. Every Copeland Commercial Unit is compact, efficient, trouble-free. Distributors like to sell merchandise which brings repeat sales.

Copeland distributors are making money. If *you* would like to join them, and territory is not now assigned, the road to profit and satisfaction for *you* leads direct to Copeland.

Territories are being snapped up. Write, wire or phone today if interested.

COPELAND REFRIGERATION CORP., Mount Clemens, Mich.

Copeland
DEPENDABLE Electric REFRIGERATION

## Amendments to Ice Code Are Designed To End 'Price Wars'

WASHINGTON, D. C.—Approval of emergency measures proposed by the code authority for the ice industry, and designed to prevent recurrence of "price wars" in a few highly competitive areas, has been announced by Hugh S. Johnson, National Recovery Administrator.

These measures are expected to end the type of competition which in some areas during the past year has forced ice prices to the lowest levels in the history of the ice industry.

Under the approved regulations, which become effective May 9, the administrator is empowered to establish a schedule of minimum prices for natural and artificial ice in any area where the emergency is found to exist as a result of destructive price cutting, whether due to excessive overproduction, increased supply, or any other cause.

**To Establish Schedule**

The schedule to be established by the administrator will be based upon the lowest reasonable cost of a representative operation located within the affected competitive area, and it will be set only after a public hearing of all parties concerned, including consumer interests.

While operation of the approved code has been "very satisfactory" to the ice industry as a whole, the code authority reported to NRA that excessive over-capacity in certain southern cities has brought about destructive competition which the code is powerless to control.

**Trouble in Dallas, Tex.**

Chief among the "trouble spots" is Dallas, Tex., where, according to the code authority, ice is being sold at 5 cents per 100 lbs. wholesale and 10 cents per 100 lbs. at retail, against a cost of distribution alone amounting to 23 cents per 100 lbs. The ice industry in Dallas, the NRA was informed, now is losing approximately $4,000 a day; and the situation has become so acute that producers are endeavoring to dispose of their surplus ice in surrounding towns as remote as 75 miles.

Code provisions against selling below cost, the code authority asserted, were virtually useless because of the difficulty involved in determining the adequacy of published schedules.

Under the newly approved emergency measures, definite costs will be established; and once these facts are determined, violators of the prices thus set will receive immediate attention from the district attorney for the area involved.

## Dr. Allison Plans Tour Of New York Cities

NEW YORK CITY—Field Manager Dr. G. W. Allison of the Electric Refrigeration Bureau, who returned last week after a two-months trip in which he addressed nearly 50 meetings of electric refrigeration groups on the Pacific Coast and in the South and Middle West, was scheduled to start out on another speaking tour starting May 7.

Mr. Allison will conduct a series of meetings in New York state in the towns of Geneva, Auburn, Ithaca, Elmira, Syracuse, Utica, and Cortland.

Other meetings scheduled included two in Salisbury, Md., where refrigerator salesmen will gather in the afternoon of May 14, and members of the Del Marva Electrical Association in the evening. Dr. Allison will also speak in Harrington, Del., May 15.

## Mildon Is Vice President Of Westinghouse

EAST PITTSBURGH, Pa.—At a recent meeting of the board of directors of the Westinghouse Electric & Mfg. Co., R. B. Mildon was elected vice president in charge of the operations of marketing, engineering, manufacturing and service, having to do with the products of the South Philadelphia Works. His headquarters will be located at that place.

In 1909 Mr. Mildon became associated with the Westinghouse Co. in charge of the gas producer department of the machine works here. In 1912 he was transferred to the Westinghouse Air Spring Co. and re-entered the employ of the Westinghouse Electric & Mfg. Co. in 1916 as assistant to vice president.

## R. Cooper Jr. Employes Win Ping-Pong Honors

CHICAGO—Five members of the credit and collection department of R. Cooper Jr., Inc., General Electric distributor here, recently won the championship of the Industrial Ping-Pong League, comprised of 10 commercial firms in Chicago. Coopermen on the victorious team were E. C. Reading, W. R. Hadac, Ronald Gadbois, B. F. Raimer, and C. A. Borine.

## Four Home Economists Added to Kelvinator Department

DETROIT—Four new members have been added to the staff of the Kelvin Kitchen, according to Polly Peacock, director of home economics for Kelvinator Corp.

Roxy Speed, who comes from Roanoke, Va., where she was engaged in home service work for utilities and a large electrical appliance concern, will cover the Southwest territory.

Alice Cooley, graduate of Iowa State College with a master's degree in dietetics, is now organizing distributor home economics departments for Middle West distributors.

Jean Stone hails from Chicago and will work in the Chicago territory. She did extensive research work in household arts while in college.

Elizabeth Kendall, who has a degree from the University of New Hampshire, is doing home service work for Kelvinator in all parts of the country. She was formerly engaged in extension work with a large appliance manufacturing firm.

## New Apartment Has All-Electric Kitchens

BROOKLYN N. Y.—The new $500,000 apartment building at 1035 Washington Ave., here, which has all-electric kitchens with General Electric refrigerators and ranges, will be ready for occupancy May 15, according to Mayer Kenin, president of Kenin & Posner, builders and owners.

The refrigerators and ranges were installed by Rex Cole, Inc., New York G-E distributor.

"The building is already 50 per cent rented and we expect it to be filled 100 per cent by the time it is ready for occupancy." Mr. Kenin stated last week. "I consider the all-electric kitchens in this new building our strongest renting factor."

Since energy for lighting, cooking, and refrigeration is supplied by electricity, it has not been found necessary to run a single gas line into the new building, Mr. Kenin points out

Other features of the new apartment building are deluxe electrical fixtures, antenaplex community aerial for tenants' radios, colored tile baths with stall showers, linoleum floored kitchens, a large entrance foyer for each apartment, a children's playroom, a large garden court on Sullivan Place and a bridge room.

The building overlooks the Botanical Gardens.

A testimonial luncheon to the architects, contractors, and builders of the new apartment house will be held at 12:30 p. m. Thursday, May 10 at the Waldorf-Astoria. The proceedings will be broadcast over station WOR.

Langdown W. Post, tenement house commissioner, will be guest of honor at this luncheon. Other guests include Rex Cole, president, Rex Cole, Inc., and E. Hamilton Campbell, sales promotion manager, Rex Cole, Inc.

## Coghlin Electric Co. Will Handle Crosley Line

WORCESTER, Mass. — Coghlin Electric Co., one of the oldest electrical firms in this part of the country, has just been appointed distributor for Crosley Shelvador refrigerators and Crosley radios.

The company was founded 41 years ago by John P. Coghlin, now president of the firm.

Mr. Coghlin started his career as a manufacturer of electric motors, but later turned to electric construction. In 1902 the firm entered the wholesale end of the electrical supply business.

## Brogan Heads New Kelvinator Branch

DETROIT — Kelvinator Corp. has announced the appointment of C. R. Brogan as manager of its recently-created branch at Atlanta, Ga.

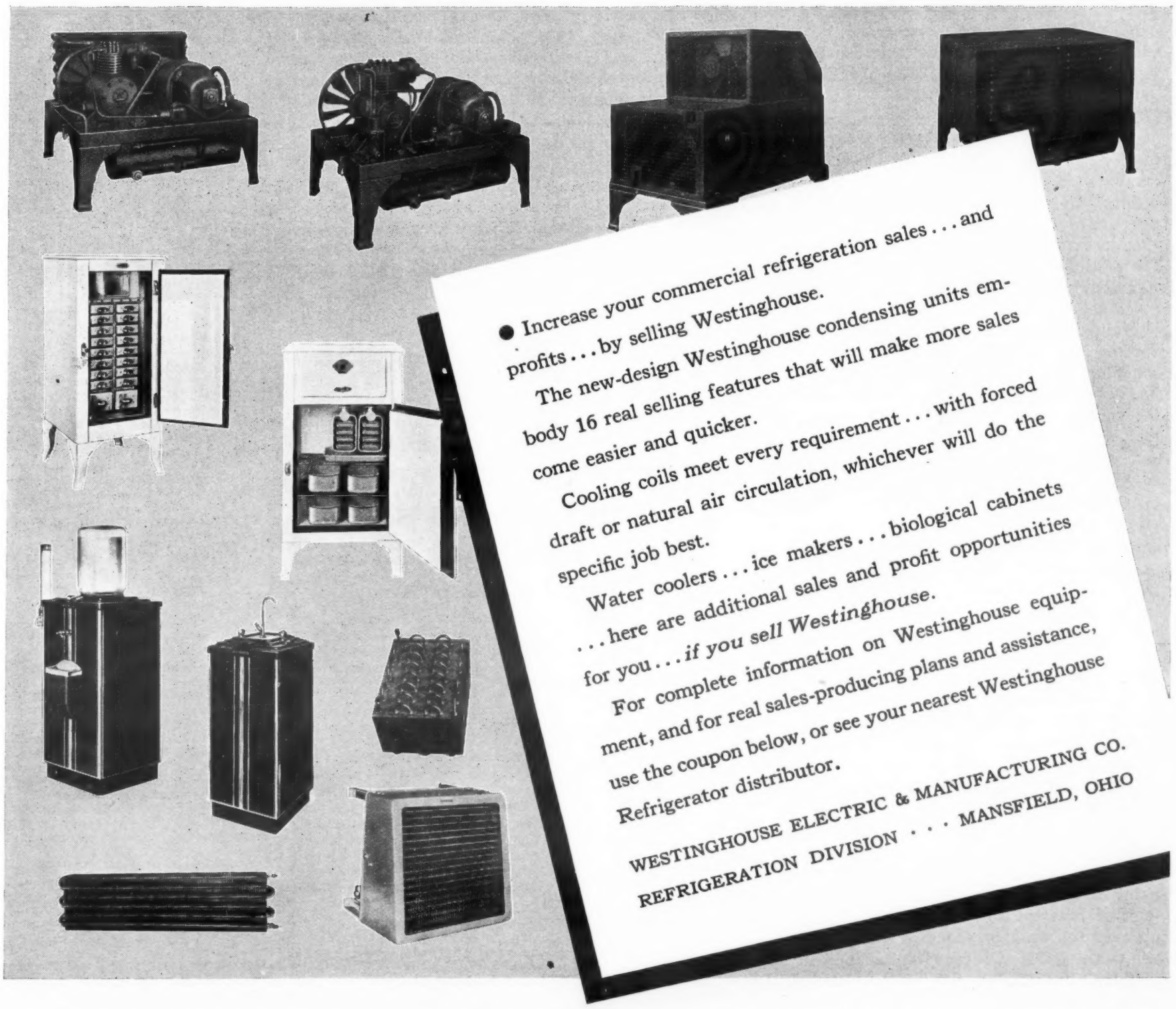
Mr. Brogan joined Kelvinator in 1926. After three years spent in various service department capacities, he was appointed a district sales manager in charge of all distributor and dealer activities in Maryland, Virginia, and the District of Columbia.

When Kelvinator enlarged its commercial refrigeration program in the fall of 1933, a territory that included Maryland, North Carolina, South Carolina, Georgia and Alabama was placed under the direction of Mr. Brogan as commercial district manager. His appointment to the branch managership came six months later.

With the exception of Chatham and Fannin counties, the entire state of Georgia is embraced in the territory supervised by Kelvinator's newest branch manager. Mr. Brogan's jurisdiction includes control of his company's relations with the Georgia Power Co., one of the most important Kelvinator outlets in the South.


Want a Line of Profit Makers?

INVESTIGATE WESTINGHOUSE COMMERCIAL EQUIPMENT



● Increase your commercial refrigeration sales . . . and profits . . . by selling Westinghouse.

The new-design Westinghouse condensing units embody 16 real selling features that will make more sales come easier and quicker.

Cooling coils meet every requirement . . . with forced draft or natural air circulation, whichever will do the specific job best.

Water coolers . . . ice makers . . . biological cabinets . . . here are additional sales and profit opportunities for you . . . *if you sell Westinghouse.*

For complete information on Westinghouse equipment, and for real sales-producing plans and assistance, use the coupon below, or see your nearest Westinghouse Refrigerator distributor.

WESTINGHOUSE ELECTRIC & MANUFACTURING CO.
REFRIGERATION DIVISION . . . MANSFIELD, OHIO

Westinghouse

Commercial Refrigeration

Westinghouse Electric & Manufacturing Co.,
Mansfield, Ohio

Please send me complete information on how I can make additional profits from Westinghouse Commercial Refrigeration.

Name_____

Street_____

City_____

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# Commercial Prospects

COMMERCIAL refrigeration has been the chief dark spot in the refrigeration industry's picture ever since the depression. Unlike household refrigeration, which kept soaring to new high sales peaks despite adverse business conditions, commercial refrigeration followed the sharp descent of the general business curve.

According to the 1934 REFRIGERATION DIRECTORY AND MARKET DATA BOOK, sales of commercial refrigerators (water coolers, ice cream cabinets, milk coolers, commercial boxes, and other self-contained commercial applications) have run as follows: 1929—314,200; 1930—245,600; 1931—187,200; 1932—105,300; 1933—102,500.

From the same source we extract the information that during this trying period sales of commercial refrigerating machines ran as follows: 1929—140,000; 1930—79,900; 1931—100,400; 1932—64,500; 1933—63,600.

Although 1933 was the best year of all time for household refrigerators, it was the poorest in recent years for commercial refrigerators and machines. This, in spite of the fact that in 1933 a brand new market for commercial equipment was opened up—beer cooling.

What are the prospects for commercial business in 1934? The answer given by heads of commercial refrigeration divisions of various manufacturers is, almost unanimously: "Better. But don't expect too much."

Take beer cooling. The Great White Hope of 1933, for instance. Last year hundreds of retailers failed to buy modern refrigeration equipment for their beer gardens for two pretty general reasons: (1) fearing that the cry for beer might be a passing fancy, they refused to invest much in capital equipment; and (2) many breweries and beer suppliers did not recommend the purchase of mechanical refrigeration to their clients last summer.

To all those biergartens, bierstubes, restaurants, and whatnot which have found the beer retailing business profitable and reasonably steady, the first reason for not buying modern refrigeration equipment is no longer valid. They comprise quite a market.

The second objection to mechanical beer cooling equipment—failure of breweries to recommend it—is being overcome by education. Frigidaire, for instance, has been staging meetings of brewers and beer distributors in cities all over the country, teaching these groups just what can be done with modern equipment. Many brewers, like Rip Van Winkle, took up their thinking just where they left off at the beginning of the Prohibition Era. They simply didn't know what progress had been made in the art of refrigeration.

At first brewers also objected to the installation of mechanical refrigeration equipment on the part of retailers because of the money involved. They wanted, during the first flush of business, to help set up as many retailers as possible, and sell them all a bill of goods. Now, of course, that opening "Gold Rush" to get into the beer business is all over; and many of these counterparts of the "Forty-Niners" have fallen by the wayside. Those who are left are, in the main, fairly substantial firms which expect to be in business a long time; and, hence, need the best equipment they can get.

In addition to new business from beer retailers, agents for commercial refrigeration equipment are expecting to get extra business from other sources this year. There has been a considerable expansion of food merchandising outlets—both food serving and food selling—in the last few months, commercial sales executives have found. Restaurants, meat markets, and grocery stores which went out of business by the scores in 1929 and 1930 are now reopening at the old stands. "Open for business. Under new management" signs are being found in almost every city, especially in the factory sections of those cities. All these are prospects for commercial machines and cases.

Still another sign of hope to manufacturers is the fact that most of the repossessed commercial equipment which has glutted the market for the last three years is now cleaned up. With the wholesale demise of food servers and food retailers in 1930 and 1931 came an avalanche of repossessed commercial equipment back upon distributors and dealers. Inasmuch as practically all of these jobs are sold on long terms, the going-out-of-business of great numbers of customers meant the return of an appalling amount of used machines and cases. Any number of distributors have made practically all their sales in the last two years from such stocks. Now that these stocks are practically depleted, manufacturers expect to see a pursuant upswing in business.

Even though there are several factors of this nature which all point toward a better commercial business in 1934, commercial sales managers are not overly sanguine. They point out that saturation of the commercial refrigeration market is comparatively high, and that it is not nearly the wide-open proposition that household refrigeration seems to be just now. One of the leading manufacturers of both commercial and household equipment figures the 1934 market for the former to be about one-twentieth of the latter. They also point out that competition for commercial sales is unusually keen, with companies like Frigidaire, Kelvinator, Servel, General Electric, Norge, Universal Cooler, Westinghouse, Trupar, York, Frick, Carbondale, and Lipman all out for the business.

The fact that leading commercial sales managers expect a reasonably good pick-up in sales this year should, however, be welcome indeed to the industry at large. Commercial business has been ailing and failing long enough.

## WHAT OTHERS SAY

### Beware of Monopolies

*"Monopoly—any such control of a commodity, service, or traffic in a given market as enables the one having such control to raise the price of a commodity or service materially above the price fixed by free competition." Webster's Dictionary.*

AMERICANS have been taught to fear the effects of monopoly. American legislators have been alert to protect the public from monopolistic combinations. That, too, has been one of the chief duties of the Federal Trade Commission, and that body, as at present constituted, has very definitely expressed itself on this point.

Of course, there is a possibility that a monopoly may be beneficent; that it may be so motivated as to work toward public interest. That motivation, however, depends entirely upon the human element in control. Human nature, as well as life, is ephemeral, and hence a beneficent monopoly may quickly change into a harmful one, with change of control or motivation.

A beneficent monopoly might encourage invention, stimulate initiative, reward achievement, protect wages, reduce costs, and pass the fruits of technological progress onto consumers. If it ceases to be beneficially motivated, however, the same monopolistic machine may easily freeze invention by maintaining the *status quo*, stifle initiative, dictate wages, raise costs and prices, and milk the consumer. These possibilities are so evident that they have properly outweighed, in public minds, the theoretical advantages. Monopolies, because of their dangerous potentialities, are properly frowned upon.

Thus far, every new dealer, brain truster, and Federal Trade Commissioner will say "amen." But at this point we part company.

For we assert that planned economy and government monopoly are true Siamese twins which no economic surgery can successfully sever; and that no monopoly has more potentialities for public disservice and injury than a monopoly under government aegis which is subject to the changing winds and whims of fickle political fortune. —*Iron Age*, May 3, 1934.

# Changes in Retailing Code Would Affect Instalment Selling

WASHINGTON, D. C.—Important revisions in selling methods are proposed in amendments to the Retail Code submitted last week by the Retail Code Authority.

Among the proposed changes, which the proponents believe would place the trade on a more ethical basis, there are provisions that would prohibit the "one cent" sale, the offering of any "free" article in the case of buying another, the use of the "suit club plan" or similar inducement to stimulate buying, and advertisements of goods sold on the instalment plan that do not state clearly all the terms and charges which must be complied with by the purchaser.

**Definition of Free Merchandise**

Under the proposed amendments the "extra" piece of merchandise that goes "free" with every purchase of so many dollars worth of some other product will be outlawed. It is provided in this proposal, however, that "anything freely given to anyone without restriction may be advertised as free.'" This clause, it was explained, will safeguard the right of a store to distribute to all comers on an anniversary or other occasion, tokens of the concern's regard for public patronage.

The proposed reforms for the instalment houses are drawn in considerable detail. After proposing that advertisements of merchandise on the instalment plan "shall clearly and unequivocally indicate all terms and charges which must be complied with in order to obtain the merchandise so advertised," the following amendment relating to "finance charges" is proposed:

**Proposed Amendment**

"It shall be misleading advertising and a violation of Article IX, Section 1 (a) of the Code, if any retailer, in advertising merchandise and/or services for sales on deferred or instalment payments, shall quote a price for such merchandise and/or services without stating clearly whether that price does or does not include financing and/or other charges for the deferred or instalment payments.

"It shall be a misleading selling method and a violation of Article IX, Section 1 (a) of the Code if any retailer, in selling merchandise and/or services on deferred or instalment payments, shall fail to state in the conditional sales contract the exact carrying charges, if any, in terms of a monthly rate per cent on actual unpaid (declining) balances.

"In case no conditional sales contract is signed, it shall be a misleading selling method and violation of Article IX, Section 1 (a) of the Code if any retailer, in selling merchandise and/or services on deferred or instalment payments, shall fail to give the buyer of such merchandise a written statement containing:

(a) Cash price of the merchandise.
(b) Deferred payment price.
(c) The amount of carrying charges stated in terms of a rate per cent per month on actual unpaid (declining) balance."

## Lack of Purchasing Power Obstacle to Foreign Sales

WASHINGTON, D. C.—Lack of purchasing power still remains the principal obstacle to the sale of American-made refrigerators in foreign countries, although some foreign markets are showing signs of a business pickup, according to a recent bulletin issued by the Electrical Equipment Division of the Bureau of Foreign and Domestic Commerce.

A report from Hobart, capital city of Australia, declares that sales of electric household equipment has advanced. Some 460 licenses were issued to electrical contractors and wiremen, a considerable improvement over last year.

Sales of appliances in Mexico may be encouraged by the reduction in electric power rates, recently ordered by the President of Mexico. January refrigerator sales showed an increase.

While Argentine imports of electric refrigerators decreased from 2,845 in 1931 to 518 in 1932, it is believed that the market for this product is destined to show an improvement. At present there is considerable importation of refrigerator mechanism, motors, and condensers, for installation in cabinets made in Buenos Aires.

The demand for electric refrigerators in Germany is small, says the report, because of the low buying power of the public. About 20 makes of refrigerators are manufactured in Germany, most of which closely resemble American models in design and performance. American refrigerators have an excellent reputation in Germany and would ordinarily find a fair market during normal times, particularly among those prospective purchasers who lay special value upon high quality products.

## Resigns

JOHN F. DITZELL
**Who has been actively engaged in attempts to sell the various components of the Grigsby-Grunow Co., has resigned as general sales manager of that concern.**

## 125 San Diego Dealers Sponsor 4-Day Show And Institute

SAN DIEGO, Cal.—The Electric Refrigeration Bureau of San Diego County, in which 125 refrigeration dealers are represented, staged its first exclusive electric refrigeration show for four days starting April 25 under the direction of J. Clark Chamberlain, secretary-manager.

The exposition was held in the auditorium of the American Legion at Balboa Park and was presented under the title of the "Chilled Foods Institute and Refrigeration Show."

Sessions of the Chilled Foods Institute were held Wednesday, Thursday, and Friday afternoons, while all the evenings and Saturday afternoon were devoted to refrigeration displays and entertainment. Entertainment was furnished by artists from radio station KGB.

The Institute sessions were under the direction of Miss B. Edna Galvin, widely known home economist.

Only one exhibit space other than those for exclusive showing of domestic refrigerators was provided, and that was for the housing of a special meat display which the bureau invited local meat handlers to install for the purpose of demonstrating the principle of quantity buying and to emphasize perfect food preservation.

In this exhibit was a 10-ft. freezer case. The quantity buying story was graphically illustrated by means of placards. Other perishables were also displayed to clinch this point, and in addition, the top shelf was reserved for the display of the many desserts made during the Chilled Foods Institute sessions.

To each booth representing a different make the bureau assigned a special "stunt" in order to bring to light all the features of an electric refrigerator. For example, in one booth the electric refrigerator was put to work making popsicles for presentation to children. Another had an exhibit of trick ice cubes, colored, and with fancy centers. Other exhibits emphasized the dessert or salad-making possibilities of the electric refrigerator, correct placing of food, bottle storage, etc.

Makes exhibited at the San Diego show included Cold Spot, Crosley, Electrolux, Frigidaire, General Electric, Grunow, Hotpoint, Kelvinator, Leonard, Norge, Stewart-Warner, Trukold, and Westinghouse.

## Bucher New President Of Westinghouse International

EAST PITTSBURGH, Pa.—At a recent meeting of the Westinghouse Electric International Co., George H. Bucher was elected president of the company. As president and general manager, Mr. Bucher will continue his headquarters in this city.

Mr. Bucher has been connected with the Westinghouse organization since Sept. 1, 1909. After graduating from Pratt's Institute, Brooklyn, in both steam and machine design, and also electrical engineering, Mr. Bucher joined the Westinghouse Electric & Mfg. Co. at East Pittsburgh as a graduate student.

In 1911 he was transferred to the export department at New York and in 1920 he was appointed assistant to the general manager of the Westinghouse Electric International Co.; and in 1921 he was promoted to the position of assistant general manager and in 1932 to the position of vice president and general manager of the same company.

# ENGINEERING

## Los Angeles Engineers Told About Temperatures Near Absolute Zero

LOS ANGELES—Temperatures so low as "to make the Byrd Antarctic Expedition look like a summer excursion by comparison," were described at the March meeting of the Los Angeles section of the A.S.R.E. The meeting was held at California Institute of Technology in Pasadena.

Prof. Alexander Goetz, working in conjunction with the physics department has developed the Cryogenic Laboratories at the institute for experiments in the low-temperature field, and the speaker, Robert E. Jacobs, teaching fellow in physics, has been associated with Prof. Goetz in this work.

**Gives Temperatures**

In commencing his talk, Mr. Jacobs described a few of the points on the temperature scale which are familiar to the average layman. He began with the high side of the scale, referring to the melting point of solder, the boiling point of water at 212° F. and 100° C., through the boiling point of alcohol and ether, then to ammonia at -28° F. and down the scale to carbon dioxide, liquid air and finally at the extreme lower end of the scale, boiling points of hydrogen and helium.

According to Mr. Jacobs, several different methods are used to produce low temperatures. The first of these is freezing mixtures with which many of us are already familiar. Salt and ice will produce a temperature of -22° C. or -7.6° F., ice and calcium chloride will produce a temperature of -55° C. or -67° F., and sulphuric acid and ice will produce a temperature of -75° C., or -103° F.

**Evaporation of Liquids**

The second method is by rapid evaporation of liquids. It is a well known fact that water, through rapid evaporation, can be frozen and that ether gives still lower temperatures. Ammonia, propane, carbon dioxide, and liquid air produce still lower temperatures. Beyond this point, however, we reach those liquids which most of us practically never see but which are known to us only in the gaseous state.

The third method of producing low temperatures with some of these gases is to expand them suddenly after compression. Even this method will not liquefy many of the gases, and therefore, the fourth method or Joule-Thompson effect is used.

Investigations by Joule and Lord Kelvin, showed that gas experiences a drop in temperature by throttling and it is this effect which is used in the well known Linde regenerative refrigeration process.

**Method of Cooling**

In this process, compressed gas is completely cooled by water and then expanded into a pipe surrounded by a second pipe. The expanded gases flow back through the outside pipe, and are cooled by expansion in the inner chamber. This cooled gas is led to the compressor, compressed again and then expanded.

By continuing this process, temperatures gradually drop below the critical point, which is the point in temperature above which gases cannot be liquefied, no matter how great the pressure. When the temperature drops below the critical point, by using sufficient pressure, the gas is liquefied and this, in the case of air is -220° F.

**Liquid Air Liquefies Hydrogen**

In order to liquefy hydrogen which boils at a temperature of -253° C. or -423° F., liquid air is used as a cooling medium in conjunction with compression of the hydrogen gas, and eventually produces hydrogen in liquid state.

Liquid hydrogen in turn is then used to liquefy helium, which is the gas with the lowest boiling point on the temperature scale, this temperature being -268° C or -450° F.

Absolute zero, a theoretical temperature which has thus far never been produced is -460° F. or -275 C. At this temperature all molecular motion is supposed to cease and it is the temperature at which matter would contain no heat whatsoever.

**Liquefying Helium**

"The problem of liquefying helium so close to absolute zero has been a difficult one and was first successfully solved by Kessan at Leiden in 1926. By rapidly evaporating helium, the temperature of the liquid was still further reduced to .7° C. absolute. In others words, -272.3° C. It is interesting to note that hydrogen, being so extremely light, weighs, in liquid form, only about 1 ounce to a pint. A pint of water, of course, weighs approximately one pound," Mr. Jacobs stated.

Following his description of low temperatures, the speaker produced a number of experiments with liquid air to demonstrate the physical change occurring in most substances at low temperatures.

Soft rubber becomes as brittle as glass, while solder, normally a very soft metal takes on all the characteristics of spring steel. Mercury at these temperatures is frozen solid and becomes practically as hard as iron.

**Freezes Raw Egg**

Another interesting experiment was the freezing of an ordinary raw egg, which at the temperature of liquid air, resembled the familiar hard boiled stage, and could be broken into pieces. The egg, of course, returns to its previous state when temperatures are brought to normal.

Since liquid air is approximately one-fifth liquid oxygen, the oxygen is present in a very concentrated state and by pouring liquid air over steel wool, this material can be ignited by a match and burns brilliantly.

Following the liquid air experiment, members and guests inspected the Cryogenic laboratories where liquid helium has actually been produced. Although the description of the method used in obtaining helium in the liquid state sounds more or less simple, the apparatus for producing it is extremely complicated.

Included in the process are three liquefying plants for carbon dioxide, air, and hydrogen, each of these being necessary in economically producing a liquid of the next lower temperature.

**Liquid Hydrogen Dangerous**

Extreme care must be used in handling liquid hydrogen, because even in the gaseous state, this element is highly explosive and in the liquid state, it becomes highly concentrated, being about 800 times as explosive as dynamite.

Every precaution is taken in the laboratory to prevent the forming of electric sparks and any other means by which hydrogen can be ignited, and exhaust fans are kept operating to blow any leakage of vapor to the outside air. The actual quantity of liquid helium produced is very small indeed, and is produced within tubes, surrounded by liquid hydrogen, most of the experiments being conducted without removing the liquid gas from the tube in which it was formed.

It is said that somewhere between 8 and 12 horsepower are necessary to produce a quart of liquid air and this figure must be considerably increased for hydrogen, which is much lower in temperature.

## Douglas Annin Joins Staff of Minneapolis-Honeywell

MINNEAPOLIS — Douglas Annin, who has been identified with the distribution of industrial process controls for the last 10 years, has joined the staff of Minneapolis-Honeywell Regulator Co., according to an announcement made last week by C. B. Sweatt, vice president in charge of sales.

Mr. Annin, who has developed a number of control patents pertaining to valves and automatic regulators, joins the industrial regulator division of Minneapolis-Honeywell in a sales and engineering capacity.

Prior to joining Minneapolis-Honeywell, Mr. Annin was chief engineer of Neilan Co., Ltd., Los Angeles, and when this firm was merged with the Mason Regulator Co., Mr. Annin became sales engineer of the Mason-Neilan Regulator Co., of Boston. He is a graduate of the California Institute of Technology.

## Coffey Heads Frigidaire Advertising in St. Louis

DAYTON—Jack C. Coffey, for six years connected with the advertising and sales promotion departments of Frigidaire Corp. at the factory here, has been transferred to St. Louis, where he will be in charge of sales promotion and advertising in the St. Louis district, according to announcement by Frank R. Pierce, sales manager.

Coffey was in charge of the Frigidaire exhibit at the Century of Progress Exposition in Chicago last year.

## Cordley & Hayes Water Cooler Sales Gain

NEW YORK CITY—March sales by Cordley & Hayes, water cooler manufacturer here, were 81 per cent ahead of March, 1933, according to W. J. Mafera.

## Joe Askin Explains Simple Way to Figure Coils

By Joe Askin
Chief Engineer, Fedders Mfg. Co.

WE have had so much demand for a quick method of computing the B.t.u. rating of "Non-Frost" evaporators, that we were forced to adopt a single factor by which to multiply square feet of surface in order to obtain B.t.u. per 24 hours heat transfer of a "Non-Frost" evaporator.

It would be absurd on our part for us to think that this is an exact method of computation of capacity of coils inasmuch as there are thousands of coils in our catalog. Not only are the coils different regarding length, thickness, width, number of tubes, fin pitch, etc., but also for a single particular coil the K factor would vary.

Naturally, to adopt a factor covering thousands of coils and using this factor under all types of conditions would be somewhat inaccurate and we had to be very conservative in adopting such a factor. For most installations you will find this factor fairly accurate, however.

An evaporator when placed very close to a drip pan or to the top of a refrigerator will have a much lower K factor than one in which generous clearances are allowed for the warm air to reach the top of the evaporator. It is beyond our control in most cases as to just how an evaporator will be placed in the coil bunker.

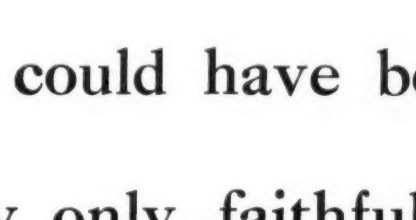
The computation given below shows the derivation of the 300 factor used for Fedders "Non-Frost" evaporators.

**Sample Problems**

8½ lbs. cut in (33° F) } Pressure Control
7" cut out (3° F) } Setting, Refrigerant SO-2

On period 3° F.
Off period 33° F.—Temperatures corresponding to Back Pressure.
EVAPORATOR
On period 32° F. off period 38° F. — Temperature of Evaporator at T.E.V. bulb.

Air, 36° at bottom, 40° at Top.
38° Average Refrigerator Temp.
50% Running Time.




32+38=35—Average temperature at inlet to evaporator.
2
3+33=18—Average temperature at outlet of evaporator.
2
35+18=26.5—Overall average vapor temperature taken for the on and off periods and over the whole coil.
2
26.5—Average vapor temperature.
1.5—For temperature drop from fin to tube through tube wall.
28.0—Average fin and tube temperature.
38 —Average refrigerator temperature.
10° F. Overall temperature differential.

Assume K equals 1.25 B.t.u. per sq. ft. per degree F. per hour.

Then, 10×1.25×24=300 B.t.u. per 24 hrs. per sq. ft. surface.

It will be observed from the computation above, that a "Non-Frost" evaporator is always transferring heat whether the compressor is running or is off. Possibly most of us have observed this condition in walking into a meat type refrigerator and feeling the downward draft of the cold air.

Yet the compressor may be off at that moment. In view of this fact, the computation above has been made, taking into consideration the off period of the compressor and is based on 50% running time.

It will be observed that during the on period of the compressor, the suction line of the coil is 32° F., that is, the frost line is broken at the point where the thermostatic valve bulb is located. During the off period that same portion of the evaporator reaches 38° F., or the refrigerator temperature.

During the running period of the compressor the inlet tube of the coil at the expansion valve is 38° F. At times frost may accumulate around the valve and in the first few coils of the evaporator.

During the off period the temperature at the inlet will reach 33° F., or just above the melting point of ice, allowing the coils to defrost.

## New Sealing Compound Developed for Gaskets

SYCAMORE, Ill.—A new non-corrosive, non-oxidizing sealing compound has been developed by the Ideal Commutator Dressing Co. here. Furnished in paste form, the compound can be spread as thin as .001 in., seals instantly, and never hardens or becomes brittle, developers of the material claim.

Used in connection with gaskets, or in some cases without them, or as a seal for flanged or threaded joints in fuel oil, steam, water, air, gasoline, lubricating oil, or pipe lines, it is unaffected by atmospheric conditions, heat resisting up to 400° F., seals as tight as shellac, and permits quick disassembly.

Universal Cooler products bear the reputation for good quality and dependability of performance. Such a reputation could have been gained in one way only—faithful operation throughout years of service.

UNIVERSAL COOLER CORPORATION
DETROIT, MICHIGAN BRANTFORD, ONTARIO

MANUFACTURERS OF A COMPLETE LINE OF HOUSEHOLD AND COMMERCIAL REFRIGERATION EQUIPMENT

# SPECIFICATIONS
## OF HOUSEHOLD ELECTRIC REFRIGERATORS

## Westinghouse

**Westinghouse Electric & Mfg. Co., Mansfield, Ohio**

| Model No. Master Series | CL43 | CL45 CP45 | CL55 CP55 | CL63 | CL65 CP65 | CL75 CP75 | CL95 CP95 | AP130 | AP200 |
|---|---|---|---|---|---|---|---|---|---|
| **Cabinet Specifications** | | | | | | | | | |
| Overall dimensions (in.) | | | | | | | | | |
| Height | 55⅞ | 55⅞ | 58 | 60⅞ | 60⅞ | 61¼ | 66¼ | 60 | 76 |
| Width | 24¼ | 24¼ | 27⅜ | 28⅞ | 28⅞ | 34⅛ | 33¾ | 49½ | 49½ |
| Depth | 25 | 24 | 24⅜ | 26⅜ | 25⅞ | 25⅞ | 26½ | 20 | 28⅝ |
| Inside dimensions of liner (in.) | | | | | | | | | |
| Height | 29¾ | 29¾ | 31¼ | 34⅛ | 34⅛ | 34½ | 38½ | 29¾ | 50⅛ |
| Width | 17⅝ | 17⅞ | 20⅝ | 21¾ | 21¾ | 25 | 25⅞ | 43¼ | 40¼ |
| Depth | 15⅛ | 15⅛ | 15⅛ | 15¾ | 15¾ | 15¾ | 17 | 20 | 18⅝ |
| No. of doors | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 4 |
| **Storage Capacity** | | | | | | | | | |
| Gross food storage (cu. ft.) | 4.7 | 4.7 | 5.7 | 6.9 | 6.9 | 8.0 | 9.7 | 15.3 | 21.8 |
| Net food storage (cu. ft.) | 4.2 | 4.2 | 5.2 | 6.2 | 6.2 | 7.5 | 9.2 | 13.5 | 20.1 |
| No. of shelves | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 5 | 11 |
| Total shelf area (sq. ft.) | 8.3 | 9.0 | 10.5 | 11.7 | 11.7 | 13.2 | 17.2 | 24.8 | 37.7 |
| **Ice Cube Trays** | | | | | | | | | |
| No. of trays | 2 | 3 | 3 | 4 | 6 | 6 | 6 | 7 | 7 |
| No. of cubes produced | 44 | 80 | 80 | 88 | 118 | 118 | 118 | 192 | 192 |
| Weight of cubes (lbs.) | 4½ | 8 | 8 | 9 | 12¼ | 12¼ | 12¼ | 21 | 21 |
| **Thickness of Insulation (in.)** | | | | | | | | | |
| Top | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2¾ | 4 |
| Sides | 2¾ | 2¾ | 3 | 3 | 3 | 3 | 3½ | 2¾ | 4¼ |
| Bottom | 2½ | 3 | 3 | 3 | 3 | 3 | 3 | 2¾ | 3¾ |
| **Compressor Specifications** | | | | | | | | | |
| Motor size (hp.) | ⅛ | ⅛ | ⅛ | ¼ | ⅛ | ⅛ | ⅛ | ¼ | ¼ |
| Compressor speed (r.p.m.) | 1740 | 1740 | 1740 | 1740 | 1740 | 1740 | 1740 | 1725 | 1725 |
| No. of cylinders | 1 | 1 | 1 | 1 | 1 | 1 | 1 | .... | .... |
| **Weight,** net (lbs.) CL models | 252 | 252 | 277 | 299 | 299 | 331 | 438 | .... | .... |
| CP models | .... | 290 | 318 | .... | 338 | 364 | 448 | .... | .... |
| **Price,** installed* CL models | $134.50 | 167.50 | 194.50 | 194.50 | 219.50 | 239.50 | 279.50 | .... | .... |
| CP and AP models | .... | 192.50 | 219.50 | .... | 254.50 | 279.50 | 319.50 | 454 | 579 |

*Eastern zone.

* * *

**Cabinet Materials**

Make of cabinet.....Westinghouse
Material used for frame.....Steel
Finish of shelves.....Nickle plated & hot tinned
Material used for breaker strip...Micarta
Material used for gasket.....Rubber
Make of insulation.....Balsam Wool & Celotex

**Finish**

Cabinet finish (exterior).....CL models—Dulux; CP & AP—porcelain
Cabinet finish (interior).....Porcelain

**Hardware**

Process of manufacture.....Stamped
Basic metal of hardware.....Brass
Finish of hardware.....Chromium

**Compressor**

Make of compressor.....Westinghouse
Type of system.....Hermetic
Type of compressor.....Reciprocating
Compressor drive.....Direct connected
Type of shaft seal.....None
Location of compressor.....Above

**Refrigerant**

Refrigerant used.....$SO_2$

**Control**

Make of control.....Westinghouse
Type of control.....Temperature
Temperature regulation method...Manual
How defrosted..Defrost position on control

**Lubrication**

How often should motor be oiled...Never

**Motor**

Make of motor.....Westinghouse
Type of motor.....Split phase

**Evaporator**

Make of evaporator.....Westinghouse
Evaporator construction.....Shell
Metal used.....Bronze & tin plate
Type of refrigerant control...Float valve (high side)
Type of ice trays.....Anodic aluminum

**Condenser**

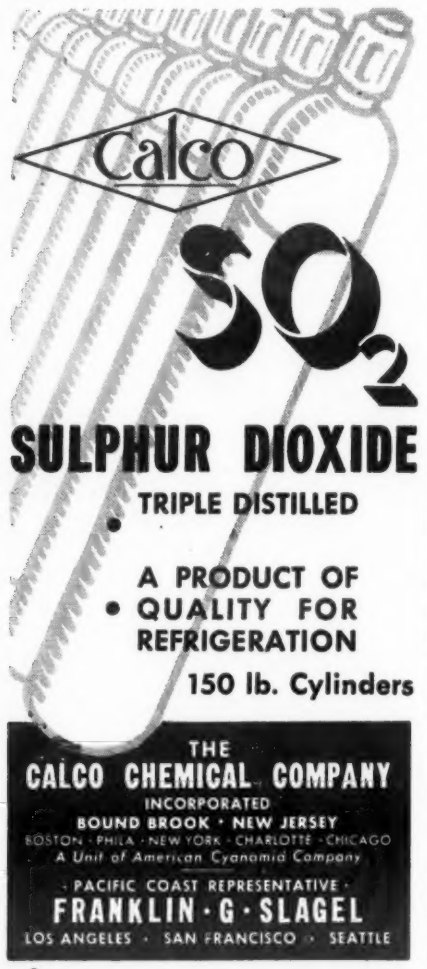
Make of condenser.....Westinghouse
Method of cooling.....Forced draft
Type of condenser.....Finned tube

**Special Features**

Interior light all models except 43 and 63; knee touch latch all CL and CP models 65, 75, and 95.

**Policy**

Guarantee on cabinet.....1 year
Guarantee on system.....1 year plus four-year service contract on hermetically sealed mechanism
Serviced by.....Distributor & dealer
Are replacement parts furnished to independent service companies.....No


**SULPHUR DIOXIDE**

• TRIPLE DISTILLED

• A PRODUCT OF QUALITY FOR REFRIGERATION

150 lb. Cylinders

THE CALCO CHEMICAL COMPANY
INCORPORATED
BOUND BROOK • NEW JERSEY
BOSTON • PHILA • NEW YORK • CHARLOTTE • CHICAGO
A Unit of American Cyanamid Company

PACIFIC COAST REPRESENTATIVE
FRANKLIN • G • SLAGEL
LOS ANGELES • SAN FRANCISCO • SEATTLE


## O'Keefe & Merritt

**O'Keefe & Merritt Co., 3700 E. Ninth St., Los Angeles, Calif.**

| Model No. | 344 | 345 | 346 | 634 | 734 | 1034 |
|---|---|---|---|---|---|---|
| **Cabinet Specifications** | | | | | | |
| Overall dimensions (in.) | | | | | | |
| Height | 54 | 58½ | 59¼ | 59¼ | 62¼ | 62¼ |
| Width | 24 | 25 | 28 | 29 | 31 | 43 |
| Depth | 22¾ | 22¾ | 22¾ | 22¾ | 22¾ | 22¾ |
| Inside dimensions of liner (in.) | | | | | | |
| Height | 25 | 29 | 30 | 30 | 33 | .... |
| Width | 18 | 19 | 22 | 22 | 24 | .... |
| Depth | 17 | 17 | 17 | 17 | 17 | .... |
| No. of doors | 1 | 1 | 1 | 1 | 1 | .... |
| **Storage Capacity** | | | | | | |
| Net food storage (cu. ft.) | 4.17 | 5.17 | 6.22 | 6.22 | 7.42 | 10.45 |
| No. of shelves | 3 | 3 | 4 | 4 | 4 | 4 |
| Total shelf area (sq. ft.) | 7 | 9.5 | 11.2 | 12.2 | 12.2 | 20.0 |
| **Ice Cube Trays** | | | | | | |
| No. of trays | 2 | 2 | 3 | 3 | 4 | 6 |
| No. of cubes produced | 56 | 56 | 84 | 84 | 112 | 168 |
| Weight of cubes (lbs.) | 3½ | 3½ | 5¼ | 5¼ | 7 | 10½ |
| **Thickness of Insulation (in.)** | | | | | | |
| Top | 2 | 3 | 3 | 3½ | 3½ | 3½ |
| Sides | 2 | 3 | 3 | 3½ | 3½ | 3½ |
| Bottom | 2 | 3 | 3 | 3½ | 3½ | 3½ |
| **Compressor Specifications** | | | | | | |
| Motor size (hp.) | ⅛ | ⅛ | ⅛ | ⅛ | ⅛ | ¼ |
| Compressor speed (r.p.m.) | 450 | 450 | 450 | 450 | 450 | 450 |
| Compressor bore (in.) | 1¼ | 1¼ | 1¼ | 1¼ | 1⅜ | 1½ |
| Compressor stroke (in.) | 1 | 1¼ | 1¼ | 1¼ | 1¼ | 1¼ |
| No. of cylinders | 2 | 2 | 2 | 2 | 2 | 2 |
| Refrigerant in system (lbs.) | 2½ | 2½ | 3 | 3 | 3¼ | 4 |
| **Weight** (net lbs.) | 325 | 375 | 400 | 425 | 450 | 575 |
| **Price** (list) | $119 | $149 | $169 | $189 | $224.50 | $324.50 |

* * *

**Cabinet Materials**

Make of cabinet.....O'Keefe & Merritt
Finish of shelves.....Tinned
Material used for breaker strip....Rubber
Material used for gasket.....Rubber

**Finish**

Cabinet finish (exterior.....Lacquer
Cabinet finish (interior).....Porcelain

**Hardware**

Basic metal of hardware.....Brass
Finish of hardware.....Chromium

**Compressor**

Make of compressor.....O'Keefe & Merritt
Type of system.....Conventional
Type of compressor.....Reciprocating
Location of compressor.....Below

**Control**

Make of control.....Ranco
Temperature regulation method.Automatic

**Refrigerant**

Refrigerant used.....Sulphur dioxide

**Motor**

Make of motor.....Wagner

**Evaporator**

Make of evaporator.....O'Keefe & Merritt
Metal used.....Porcelain
Type of refrigerant control..Thermostatic
Make of expansion valve.....American Radiator

**Condenser**

Method of cooling.....Air
Type of condenser.....Finned tube

**Special Features**

Interior electric light, built-in thermometer, drawer-type vegetable freshener, sliding shelf.

**Policy**

Guarantee on system.....1 year

## Fairbanks-Morse

**Fairbanks-Morse Co., Beloit, Wis.**

| Model No. | AL-4 | AL-5 | AL-6 | AP-5 | AP-6 |
|---|---|---|---|---|---|
| **Cabinet Specifications** | | | | | |
| Overall dimensions (in.) | | | | | |
| Height | 55 | 58 | 60¼ | 58 | 60¼ |
| Width | 23⅞ | 23¾ | 29½ | 25¾ | 29½ |
| Depth | 20⅜ | 20¾ | 21⅜ | 20¾ | 21⅜ |
| No. of doors | 1 | 1 | 1 | 1 | 1 |
| **Storage Capacity** | | | | | |
| Gross food storage (cu. ft.) | 4.8 | 6.0 | 7.2 | 6.0 | 7.2 |
| Net food storage (cu. ft.) | 4.3 | 5.4 | 6.3 | 5.4 | 6.3 |
| No. of shelves | 3 | 4 | 4 | 4 | 4 |
| Total shelf area (sq. ft.) | 8.8 | 12.3 | 13.25 | 12.3 | 13.25 |
| **Ice Cube Trays** | | | | | |
| No. of trays | 4 | 4 | 6 | 4 | 6 |
| No. of cubes produced | 84 | 84 | 126 | 84 | 126 |
| Weight of cubes (lbs.) | 5 | 5 | 7½ | 5 | 7½ |
| **Thickness of Insulation (in.)** | | | | | |
| Top | 3 | 3 | 3 | 3 | 3 |
| Sides | 2 | 2½ | 3 | 2½ | 3 |
| Bottom | 2¼ | 3 | 3 | 3 | 3 |
| **Compressor Specifications** | | | | | |
| Compressor capacity I.M.E. (lbs.) | 98.4 | 98.4 | 98.4 | 98.4 | 98.4 |
| Motor size (hp.) | ⅛ | ⅛ | ⅛ | ⅛ | ⅛ |
| Compressor speed (r.p.m.) | 1725 | 1725 | 1725 | 1725 | 1725 |
| Compressor bore (in.) | 1-1/16 | 1-1/16 | 1-1/16 | 1-1/16 | 1-1/16 |
| Compressor stroke (in.) | 33/64 | 33/64 | 33/64 | 33/64 | 33/64 |
| No. of cylinders | 2 | 2 | 2 | 2 | 2 |
| **Price,** f.o.b. | $124.50 | 159.50 | 199.50 | 184.50 | 224.50 |

* * *

**Cabinet Materials**

Finish of shelves.....Tinned
Material used for breaker strip..Panelyte
Make of insulation.....Thermocraft

**Finish**

Cabinet finish (exterior).....AL models—lacquer; others—porcelain

**Hardware**

Finish of hardware.....Chromium with Bakelite tips and door handle

**Compressor**

Type of system.....Conventional
Type of compressor.....Reciprocating
Compressor drive.....Direct
Location of compressor.....Above

**Control**

Make of control.....General Electric
Type of control.....Temperature
Temperature regulation method...Manual
How defrosted.....Semi-automatic

**Motor**

Make of motor.....General Electric
Type of motor.....Capacitor

**Refrigerant**

Refrigerant used.....Sulphur dioxide
Amount in system.....24 oz.

**Evaporator**

Evaporator construction.....Tubular
Metal used.....Brass and copper
Type of refrigerant control..Thermostatic

**Condenser**

Make of condenser.....Bush
Method of cooling.....Forced air
Type of condenser.....Finned tube

**Special Features**

Interior electric light on all but model AL-4.

**Policy**

Guarantee on system.....One year

## Empire Milk Cooler Pumps Cold Water Between Milk Cans

ROCHESTER, N. Y.—Empire Milking Machine, Inc., a company affiliated with Kellogg Mfg. Co., is introducing a new self-contained electric milk cooler with a small rotary pump which produces forced circulation of cold water around the milk cans.

The milk-cooling system is furnished either with Esco or Victor cabinets, or with milk-cooling cabinets manufactured by the Empire company.

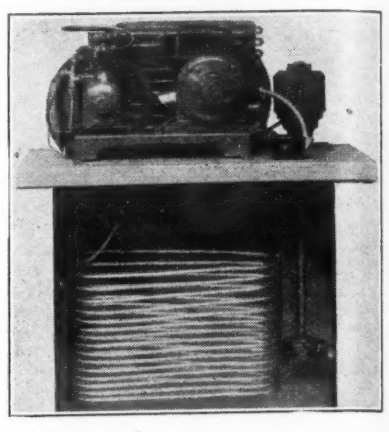
The complete system includes the self-contained, air-cooled condensing unit mounted atop the cabinet, the cabinet itself, a copper direct-expansion coil mounted directly below the refrigeration compressor, and the circulating pump (whose driving motor is mounted alongside the condensing unit).

Methyl chloride refrigerant is used in the system, being controlled by a thermostatic expansion valve. The system is set to build up a considerable amount of ice on the cooling coils, and when a farmer places milk cans in the cooler he also turns on the switch which starts the circulating pump. J. F. Weller, president of the company, claims that the cooler will reduce the temperature of milk from 99° to 50° F. in 45 minutes.

The refrigeration units, with circulating pump mounted on an insulated platform and cooling coils suspended below, are built in four sizes: Model CY-4 with a one-cylinder compressor driven by a ⅓-hp. motor; model CY-6 with a two-cylinder compressor driven by a ½-hp. motor; model CY-8 with a two-cylinder compressor and a ¾-hp. motor; and CY-12 with a two-cylinder compressor and a 1-hp. motor. The last figures in the model number indicates the number of milk cans which that model will handle.

The complete milk coolers are also offered in four sizes, to cool 4, 6, 8, or 10 ten-gallon milk cans. These are 41 in. wide, 33 in. high, and vary in length according to can capacity, being 47, 60, 78, and 96 in. long, respectively. Cabinet walls are made of copper bearing metal inside and out, galvanized. Cork insulation is used.

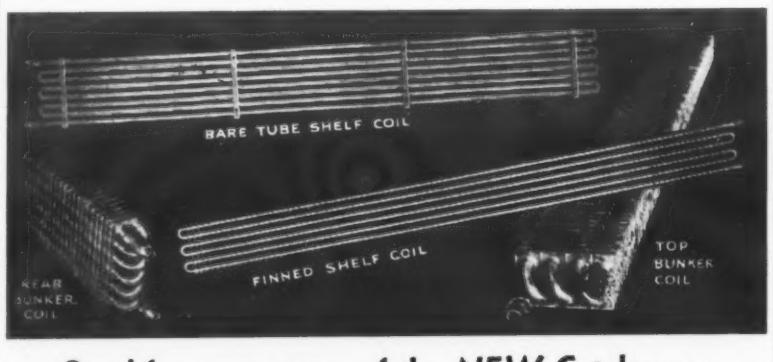
### Self-Contained



The Empire milk cooler cools the water by direct expansion coils and circulates the water around the cans with a pump.

## International Agencies to Sell 'Sunshine Ice'

CHICAGO—Merchandising of "Sunshine Ice," an article for removing pungent odors from food cabinets, refrigerators, bread boxes, and clothes closets, has been taken over by International Agencies, 35 East Wacker Drive, here.


Send for your copy of the *NEW* Catalog on

**KRAMER "Shelf" Evaporators**

One or two tubes high, any width. 1¼" tube centers. Various fin spacings and bare coils with or without "clean out" space for bottom of display cases. All copper construction. Hot tin dipped.

OVERNIGHT EXPRESS SHIPMENT AS FAR WEST AS CHICAGO

**KRAMER REFRIGERATION PRODUCTS**

Turbofin Unit Coolers
Commercial Evaporators
Domestic Evaporators
Condensers
Bottled Beer Cooling Coils
Ice Cube Makers
Shelf Evaporators
KX Case Evaporators
Junior KX Case Evaporators

**TRENTON AUTO RADIATOR WORKS**

Main Offices and Factory, TRENTON, NEW JERSEY
NEW YORK: 210-212 West 65th Street
PITTSBURGH: 5114 Liberty Avenue


## New Jas. P. Marsh Gauges Are in Square Cases

CHICAGO—Jas. P. Marsh Corp. of this city is introducing a new line of gauges mounted in a square case of modern design.

These new instruments, which are available in a wide variety of pressure applications and constructions, are made in one size—3½ inch dial.

They can be supplied with dial reading in pressure, vacuum, feet of water, or any other pressure readings.

They are also available to manufacturers of boilers and to jobbers and dealers of plumbing and heating equipment in standard low-pressure steam graduations, as well as in a combination instrument in which the temperature, pressure, and feet of water are shown on the same dial for application to domestic hot water systems.

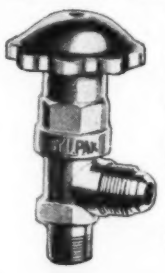
## Henderson Hoyt Co. to Sell Norges

OSHKOSH, Wis.—Henderson Hoyt Co., electrical appliance dealer here, has recently taken on the Norge line of household electric refrigerators.


*Built for Longer Life*

**IMPERIAL VALVES**

EVERY item in this line is designed to meet the severe tests which occur in refrigeration work. They are non-porous, and unaffected by sulphur dioxide, ethyl or methyl chloride or other gases used in this type of service. A few are illustrated, with list prices:



**"SYLPAK" ANGLE SHUT-OFF VALVE**

Operates on the sylphon principle; the sylphon can be changed while the valve is under pressure, without losing any refrigerant. 100,000 cycles of oscillation in actual test, without rupture.

192-c. ¼", ⅜", ½", $2.20. ⅝", $3.60.

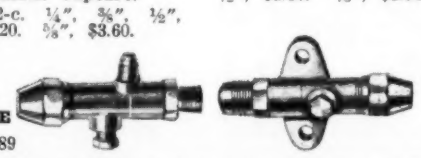
**TWO-WAY SHUT-OFF VALVE**

For multiple installations. A metal-to-metal seat forms a seal against leakage of gas or liquid. Packing easily replaced during service.

93-c. ¼", 5/16", ⅜", ½", $2.31. ⅝", $3.04

**BACKSEATING SHUT-OFF VALVE**

91-C .....$1.89



**COMPRESSOR VALVE**

43-C to 46-C $2.05 to $2.15

Our refrigeration products include a complete line of fittings, both in brass and aluminum. Also a line of up-to-date service tools.

*Write for Catalog No. 77-B*

**THE IMPERIAL BRASS MANUFACTURING CO.**
565 South Racine Ave., CHICAGO

# COMMERCIAL REFRIGERATION

## Westinghouse Adds 4 Commercial Units

*(Concluded from Page 1, Column 3)*

are vertical, two cylinder, single acting. The compressor block, consisting of cylinders, crankcase, and oil pump is cast in one block. A visible oil glass is located on each side of the crankcase. Swedish steel reed type valves are employed.

Both the intake and discharge valves are mounted in the head (not in reciprocating parts). This construction is claimed to avoid the flow of refrigerant through the crankcase with its attendant lubrication difficulties. Low inertia type valves are said to give the unit a high volumetric efficiency.

**Lubrication by Oil Pump**

Positive lubrication is made possible by the oil pump. All non-flared joints are silver soldered, and the balanced crankshaft seal is individually fitted to the crankshaft.

Other features of the new units are Westinghouse starting switch with automatic overload protections and automatic re-set, and shell-and-tube condenser on water-cooled models.

## *Direct Mail Campaign Prepared for Sale of Commercial Line*

MANSFIELD, Ohio—A complete direct mail campaign has been prepared to promote the sale of Westinghouse commercial refrigeration products, H. W. Wible, commercial refrigeration sales manager, stated last week.

For the purposes of the campaign commercial prospects have been segregated into the following groups: food retailers, restaurants and hotels, beer-cooling prospects, hospitals and institutions, florists, milk-cooling prospects, and water-cooler prospects.

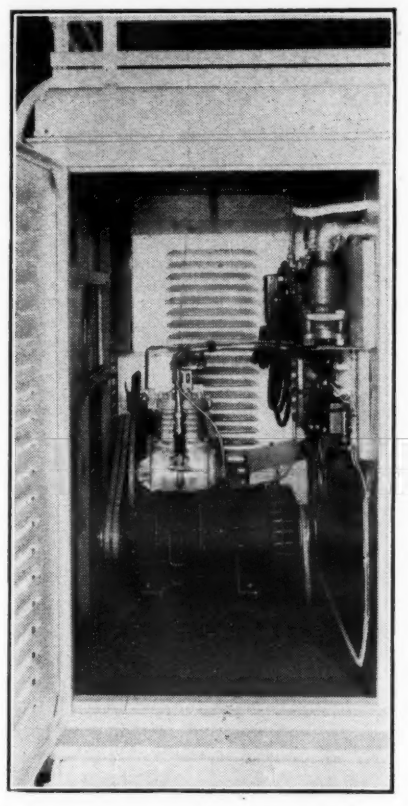
Special copy has been prepared for each of these groups, the campaigns consisting for the most part of three broadsides directed at each group.

**Westinghouse 'Check Sheet'**

The copy theme will center about the Westinghouse "check sheet" on commercial refrigeration, which prospects will be asked to call for at the dealer's place of business. This "check sheet" lists a number of questions with respect to commercial refrigeration equipment which the user or prospective user should be able to answer in the affirmative if his equipment is to give him complete satisfaction.

Also designed for the promotion of Westinghouse commercial refrigeration is a presentation booklet, profusely illustrated, which tells the story of Westinghouse' place in the commercial refrigeration field.

## *New Truck Drive*



Refrigerated truck machine compartment, directly behind the driver's cab, showing the Dynamatic drive described at right.

## Tweedell to Introduce York Units in Europe

YORK, Pa.—J. C. Tweedell, special factory representative of the export division of the York Ice Machinery Corp., sailed from New York, May 4, for a three-months tour of the European branches and distributors of the company. He goes direct to London and will use that office for his headquarters in making visits to the York representatives in Great Britain, France, Spain, and other countries.

One of Mr. Tweedell's objectives is to introduce the York Freon condensing units through sales schools and by contact with the field personnel.

While in Europe he will make a general survey of the market for air conditioning and refrigeration.

## *Renier Will Distribute Gibson Line*

GREENVILLE, Mich. — Renier Brothers of Dubuque, Iowa, have recently signed up as a distributor for Gibson electric refrigerators.

## Drive Developed for Refrigerated Trucks

KENOSHA, Wis.—Development of a new drive for motor truck refrigeration systems has been announced by the Dynamatic Corp. of this city.

The new drive is an electric power transmission, according to F. L. Hopf, assistant sales manager of the company, and operates to receive varying speeds from a power take-off on the truck transmission and deliver to the compressor a speed not in excess of the desired one. In addition, it starts and stops the compressor in response to a refrigeration thermostat in the truck body.

As shown in the illustration at left, the Dynamatic drive and refrigerating equipment are installed in a compartment directly behind the driver's cab. Belts issuing from the floor at the right in the picture are of the V type, and connect to a pulley on the power take-off below.

**Operation of Drive**

The ribbed drum, to whose pulley these belts run, idles when the truck engine is running. When refrigeration is called for, however, the thermostat closes an electric circuit which energizes coil elements inside the drum. These elements then start to rotate, following the drum, and the entire shaft rotates to drive the compressor by means of the second set of V-belts appearing at the left in the photograph.

The drive also operates on standard alternating current as in a garage or loading depot, a flexible cord and power attachment plug being furnished (upper right in picture) for "standby" operation. When running on alternating current, the system is again controlled by a thermostat which starts and stops the a.c. motor on the drive.

**Adaptable to Trailers**

Mr. Hopf emphasizes the fact that there are no electric generators or direct current motors in the machine, hence the maintenance of the drive should be no more than that of a slip-ring a.c. motor. The drive is adaptable to either motor trucks or trailers.

The drive "picks up the load" (begins to drive the compressor) at running speeds as low as 10 revolutions per minute. At this speed, the drive is over 90% efficient, Mr. Hopf claims, and at the regulating speed it attains an efficiency of 95%, he declares.

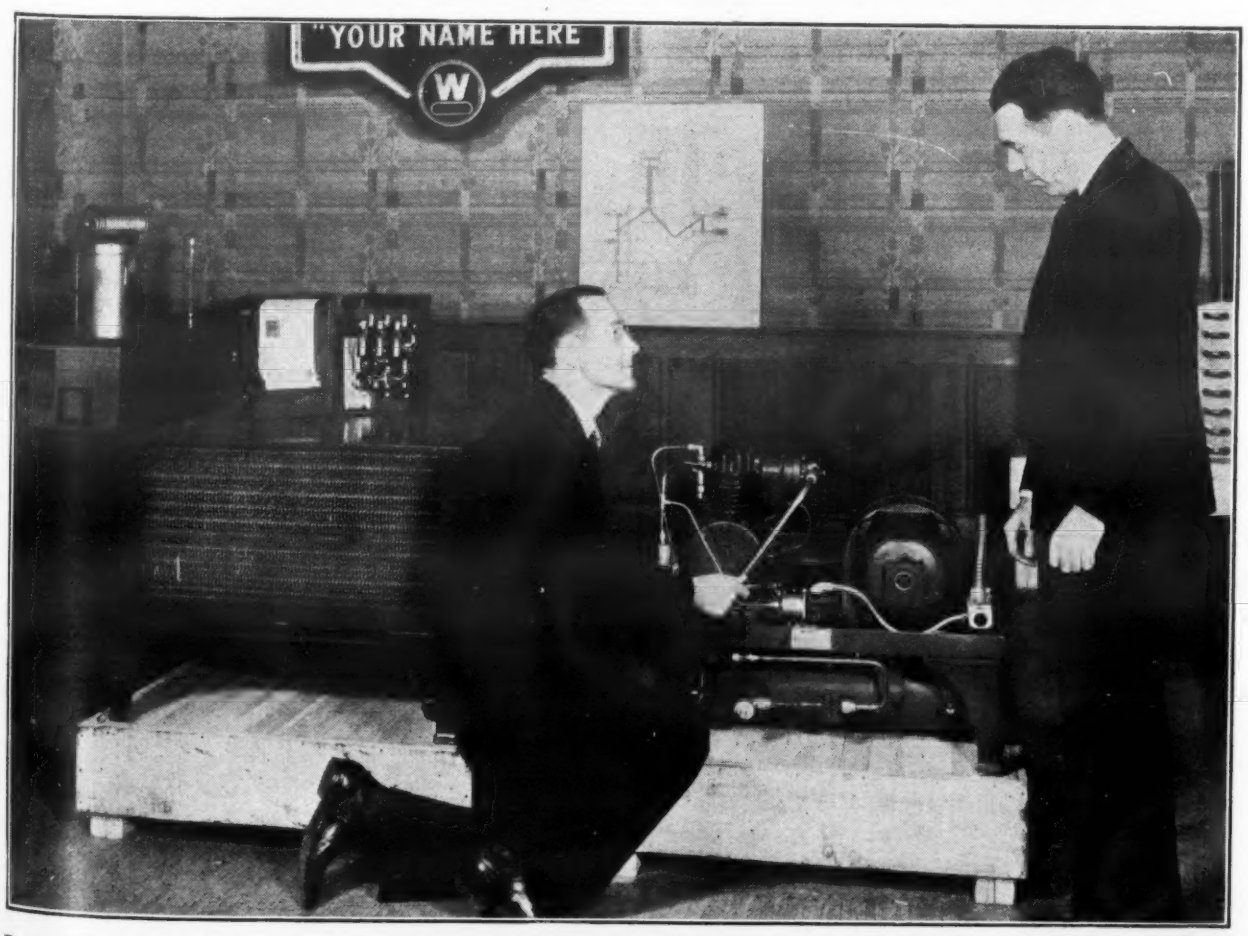
**Control Action Electrical**

The control action is entirely electrical, he says, employing a "caterpillar" resistance regulator which is actuated by the compressor. About 35 watts of power is needed to furnish excitation for the control elements, this power being taken from either a 6- or 12-volt starting and lighting system on the truck.

The drive is suitable for use with standard small commercial refrigeration systems ordinarily installed in refrigerated trucks.

Another form of the drive (of similar design, but much larger) has been used during the last four years in air conditioning of railroad cars, Mr. Hopf states.

## *Westinghouse Develops 4 New Machine Units*




R. G. Davis (kneeling) of the commercial refrigeration sales department of Westinghouse Electric & Mfg. Co., shows P. Y. Danley, manager of the refrigeration depa rtment, some of the features of the new Westinghouse conventional type commercial compressor.


*New*

**end-play-noise silencer ....another exclusive feature of the 1934 CARE-FREE CAPACITOR-MOTOR**

**2 SILENCERS ON EACH MOTOR**

**All-steel construction assures lasting protection**

**THE 1934 CARE-FREE CAPACITOR-MOTOR** with these new all-steel end-play-noise silencers, sets a new standard of quiet operation.

These unique spring-steel silencers eliminate objectionable end-bump noise by cushioning the rotor oscillations in both directions. Lasting, trouble-free protection is assured by the steel plate which is permanently set in *each* end shield.

Enhance the value of your refrigerator with the outstanding advantages of this silent, cushioned-power motor—a motor which offers more important features than any other refrigerator drive that you can buy.

Check these other features — see for yourself why the 1934 CARE-FREE CAPACITOR-MOTOR is the greatest value ever offered for domestic refrigerators . . . . . .

RUBBER MOUNTING
AUTOMATIC BELT TIGHTENER
CAST-ALUMINUM ROTOR
LARGE OIL CAPACITY
BUILT-IN TERMINAL BOX
DRIP-PROOF END-SHIELDS

To insure unit responsibility for the electric equipment of your refrigerator, order G-E cold-control units and cable with the motor.

For complete information, address General Electric, Dept. 6A-201, Schenectady, N. Y.

070-52

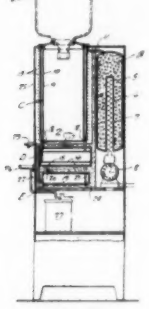
GENERAL ELECTRIC

# PATENTS

## Issued April 24, 1934

1,955,723. BEVERAGE REFRIGERATING SYSTEM. Max Alex, Alhambra, Calif. Application July 1, 1932. Serial No. 620,357. Renewed October 30, 1933. 11 Claims. (Cl. 62—141.)

1. A refrigerating assembly comprising a combined generator and absorber chamber containing a dry absorbent car-



1,955,723

rying a fluid refrigerant; means for periodically heating said chamber; a condenser including a beverage supply and economizing chamber and a refrigerant condensing chamber having a heat transfer wall forming a wall for said economizing chamber; an evaporator below said condenser including a refrigerant evaporating chamber and a beverage cooling chamber with a heat transfer wall therebetween; a beverage storage chamber below said evaporator and means connected therewith for withdrawal of cold beverage; said generator and absorber, condensing and evaporating chambers being in communication in seriatim; and said economizing, cooling and storage chambers being in communication in seriatim, there being circulating passages for beverages between said cooling and storage chambers.

1,955,724. METHOD AND APPARATUS FOR COOLING BEVERAGES AND THE LIKE. Max Alex, Alhambra, Calif. Application Dec. 3, 1932. Serial No. 645,528. 17 Claims. (Cl. 62—118.)

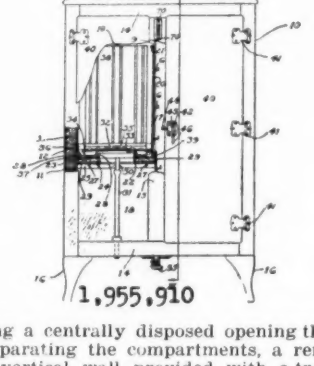
1. A liquid cooler of the class described embodying: a housing forming a liquid receiving reservoir and a liquid cooling reservoir; an insulating plug mounted in the top of said liquid cooling reservoir and separating same from said liquid receiving reservoir; a refrigerant condensing pipe in said liquid receiving reservoir; a condensate reservoir in said liquid cooling reservoir; a conduit connecting said condensate reservoir with said refrigerant condensing pipe; means for periodically generating a gaseous refrigerant and delivering same into said refrigerant condensing pipe; and a conduit for delivering liquid from said liquid receiving reservoir through said plug into said liquid cooling reservoir.

1,955,837. METHOD OF MAKING A REFRIGERATOR ELEMENT. Anthony J. Scholl, Dayton, Ohio, assignor to Frigidaire Corp., Dayton, Ohio, a corporation of Delaware. Application Jan. 31, 1929. Serial No. 336,435. 3 Claims. (Cl. 29—157.3.)

1. The method of manufacturing a refrigerator element which comprises forming a seamless tube into a seamless serpentine coil having more than one bend, supporting said coil on one or more slotted standards, spacing a plurality of fins having slotted edges and causing simultaneous relatively sideward movement between said coil and fins to cause a frictional jointure of said coil and fins and soldering said coil and fins.

1,955,910. REFRIGERATOR. Martin J. Goulooze, Grand Rapids, Mich., assignor to Kelvinator Corp., Detroit, Mich., a corporation of Michigan. Application Dec. 10, 1930. Serial No. 501,198. 4 Claims. (Cl. 62—51.)

1. A refrigerator cabinet comprising a refrigerating compartment, a refrigerated compartment, a removable horizontal wall



1,955,910

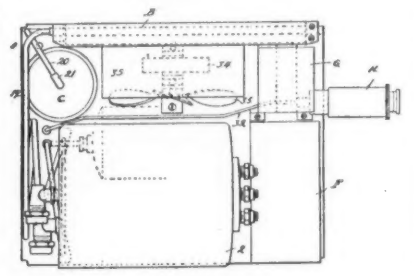
having a centrally disposed opening therein separating the compartments, a removable vertical wall provided with a trough adjacent its lower extremity, and a drip pan supported on top of the horizontal wall and beneath the trough in the vertical wall.

1,955,913. FLARING TOOL. Walter Estes Holsclaw, Evansville, Ind., assignor to Holsclaw Brothers, Inc., Evansville, Ind., a corporation of Indiana. Application Oct. 31, 1932. Serial No. 640,355. 9 Claims. (Cl. 153—79.)

1. A tube flaring tool comprising, in combination, a pair of complementary arcurate jaws with a plurality of radially arranged openings for gripping various sizes of tubes, and a flaring member slidable radially of the arc of said jaws and pivotally supported concentrically with said arc.

1,955,957. REFRIGERATING APPARATUS. Harold A. Greenwald, Marion, Ind., assignor to United States Radio & Television Corp., Marion, Ind., a corporation of Indiana. Application Aug. 22, 1932. Serial No. 629,961. 1 Claim. (Cl. 62—116.)

A substantially horizontal panel, a refrigerating apparatus, including a refrigerant condenser and a motor-com-

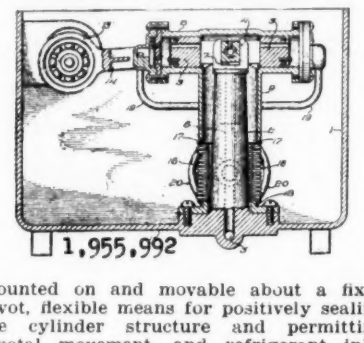


1,955,957

pressor set arranged at opposite ends on the upper side of the panel, a fan between said refrigerant condenser and said motor compressor set, other essential parts of said refrigerating apparatus being arranged on the upper side of said panel so as to direct the blast of air from the fan through the condenser and over the motor-compressor set.

1,955,992. SEALED PUMPING APPARATUS. Frank R. West, Highland Park, Mich., assignor of one-half to Harold A. Todd, Highland Park, Mich. Application Feb. 24, 1930. Serial No. 430,645. 23 Claims. (Cl. 230—192.)

1. A compressor unit for a refrigerating system, comprising a non-reciprocably mounted piston, a cylinder structure

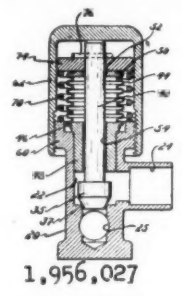


1,955,992

mounted on and movable about a fixed pivot, flexible means for positively sealing the cylinder structure and permitting pivotal movement, and refrigerant inlet and outlet conduits leading to points within said sealed cylinder structure.

1,956,027. REFRIGERATING APPARATUS. Edward Heitman, Detroit, Mich., assignor to Kelvinator Corp., Detroit, Mich., a corporation of Michigan. Application Nov. 30, 1932. Serial No. 645,025. 2 Claims. (Cl. 251—141.)

1. In a valve, a casing having a chamber for fluid and inlet and outlet passages for the flow of fluid through said



1,956,027

chamber, a valve proper disposed within said chamber for controlling the flow of fluid therethrough, flexible means sealing said chamber at one end thereof against leakage of fluid, a push rod associated with said flexible means and valve proper for actuating said valve proper, a movable cover for said flexible means, said cover being screw threaded to said casing, means within said cover tending to move said flexible means and push rod toward a valve opening position, and said cover being movable to actuate said flexible means and push rod in the opposite direction.

1,956,061. CONTROLLER. Ralph W. Doeg, Detroit, Mich., assignor to Kelvinator Corp., Detroit, Mich., a corporation of Michigan. Original application Nov. 25, 1929. Serial No. 409,531. Divided and this application Jan. 20, 1931. Serial No. 509,985. 2 Claims. (Cl. 137—156.5.)

1. A fluid pressure actuated device comprising an expansible bellows associated with a source of fluid under pressure for contraction and expansion in response to the latter, a threaded rod having an end portion rigidly secured relative to a movable end of the bellows, an internally threaded ring operably associated with the rod, a spring having an end portion rigidly secured to the ring and an opposite end portion rigidly secured to an adjusting member, and means for rotatably mounting the adjusting member in fixed relation to the opposite end of the aforesaid expansible bellows.

1,956,070. REFRIGERATOR. Martin Hokanson, Duluth, Minn. Application Nov. 27, 1931. Serial No. 577,587. 9 Claims. (Cl. 62—102.)

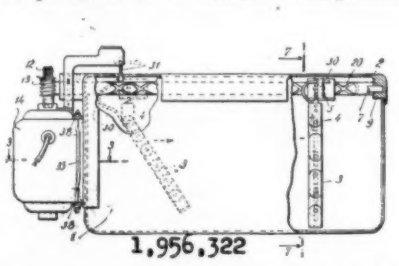
1. A refrigerator unit comprising in combination a food chamber, an air cooling chamber above the food chamber and substantially non communicative therewith, mechanical means above the cooling chamber for providing the refrigerant, a fan, and moisture supplying means cooperative with said fan for circulating and cleansing the air in the food chamber.

1,956,102. ANTIFOGGING DEVICE FOR GLASS - WALLED REFRIGERATION CHAMBERS. Charles E. Long, Minneapolis, Minn., assignor of one-half to Puffer Hubbard Mfg. Co., Minneapolis, Minn., a corporation of Minnesota. Application Nov. 22, 1930. Serial No. 497,397. 6 Claims. (Cl. 62—37.)

1. A structure providing a refrigerating chamber, a refrigerating unit in the chamber, said chamber having a glass side composed of spaced panes of glass arranged to form a hollow wall, a mullion dividing the wall into two hollow compartments, passages in the mullion establishing communication between the hollow compartments, and additional passages establishing communication between the first mentioned passages and the refrigerating chamber, said passages being arranged in sets, one adjacent the top of the wall and the other ajacent the bottom.

1,956,322. FREEZING CONTAINER FOR FROZEN FOOD PRODUCTS. Marie P. Grant, New York, N. Y. Application Nov. 4, 1932. Serial No. 641,167. 4 Claims. (Cl. 259—113.)

1. A freezing container for food products adapted for insertion in the freezing compartment of a domestic refrigerator,



1,956,322

which comprises a normally substantially vertically-extending agitating means, said agitator being displaceable from its normal vertical position, driving means for reciprocating the agitating means within the container, an electric motor for actuating the driving means, a switch in the circuit supplying power to the motor, said switch being located adjacent the path traveled by the agitator during the reciprocation and a steel spring on the agitator, said spring, when the agitator is at a considerable angle from its normal position, contacting with the switch during the reciprocation of the agitator and moving the same to a position to open the circuit supplying power to the motor.

1,956,323. INSULATING UNIT. James L. Gregg, Columbus, Ohio, assignor, by mesne assignments, to Reynolds Research Corp., New York, N. Y., a corporation of Delaware. Application Feb. 9, 1931. Serial No. 514,516. 1 Claim. (Cl. 154—45.)

An insulating pad or unit suitable for use with a plurality of similar units in an edge to edge relation to provide an insulating wall and comprising sheets of foil coextensive within the length and width of the unit and having polished faces, reinforcing sheets of a light and relatively thin material at low heat conductivity of the same area as said foil-sheets and having a foil sheet adhesively secured to each face thereof, open ended spacing members each having a relatively thin continuous wall of light material of low heat conductivity, each of said spacing members having its ends in parallel planes, the transverse dimension of said spacing element being greater than its depth and the thickness of the wall thereof being a small fraction of its depth, there being a plurality of said spacing members at predetermined intervals removed from the edges of the unit and adhesively secured to opposed foil sheets, and members of light material of low heat conductivity for sealing each unit about its edge.

1,956,390. AIR CONDITIONER AND COMPRESSOR. Otto H. Klotz, Philadelphia, Pa. Application Dec. 1, 1933. Serial No. 700,523. 9 Claims. (Cl. 261—121.)

1. In an air conditioner and compressor, a casing having a partition forming a first and second chamber with an opening communicating with said chambers, a valve controlled air inlet for the first chamber, and means controlled by the level of water in said second chamber to introduce water into and withdraw it from said first chamber.

1,956,402. ABSORPTION REFRIGERATING APPARATUS. Paul Scholl, Berlin-Siemensstadt, and Carl Kuhnel, Berlin-Charlottenburg, Germany, assignors to Siemens - Schuckertwerke Aktiengesellschaft, Berlin-Siemensstadt, Germany. Application Feb. 27, 1932. Serial No. 595,486. In Germany March 4, 1931. 11 Claims. (Cl. 62—119.5.)

9. In an absorption refrigerating apparatus of the continuous type having a gas mixture circuit including an absorber an evaporator and tubular connections between said vessels, an electromagnetically operated oscillatory diaphram exposed to the gas mixture in one of said tubular connections and hermetically sealed against the outside for impelling the gas contacting with the diaphragm in the direction of one of said vessels to maintain gas circulation between said vessels.

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Model 71 Solenoid Valve provides dependable control of water for spray nozzles on air washers. Drop forged body—heavy stamped cover, crackle finish. Easily installed, small and neat in appearance. Impact type plunger. For use with water only. Can also be supplied for the control of refrigerants. Working pressure 100 lbs. 3/32" port. Write for details.

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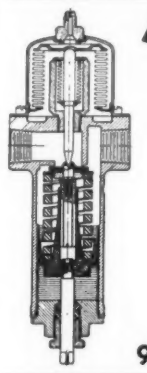

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HIGH SIDE FLOATS — EXPANSION VALVES
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HYDRON BELLOWS — LUBRICANTS
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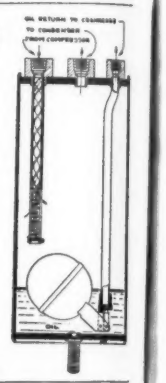
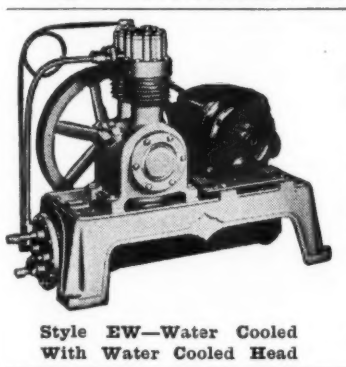
919 Holden Ave. Detroit, Mich.





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OUTSTANDING PERFORMANCE
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Sturdy Condensing Units from 80 to 2868 Lbs. I.M.E., and all other commercial refrigeration equipment—Wall type cases with machinery—A beautiful household line of modern, conservative styles—Write for full data.

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Cable "Starr" Richmond, Indiana (factory) U. S. A. Since 1927
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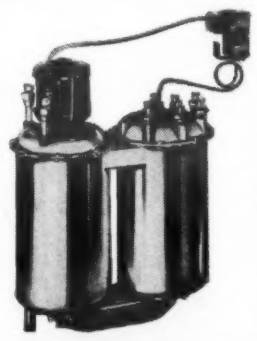

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Available with 1 to 4 draft arms with capacity for all demands.
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The Trucks You'll Buy Eventually

The new 1934 Model Heavy Duty X-70 Refrigerator Trucks—fit all cabinets with or without legs, or in the crate, preventing damage to cabinet, floor or walls. Sturdy all steel frame. One truck with top casters and handles for tilting and rolling into delivery truck and on stairs. Only pads touch cabinet. Complete set $34.50. Ball bearing swivel casters on one end $5 extra. Also manufacturing Balance Refrigerator Trucks and eleven styles of piano trucks.

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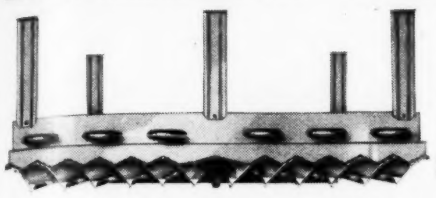

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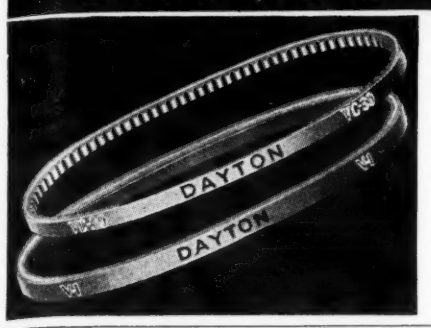


● There is a Dayton V-Belt for all makes and types of refrigerators. A stock is available near you. Send for price list and name of your nearest distributor.

THE DAYTON RUBBER MFG. CO.
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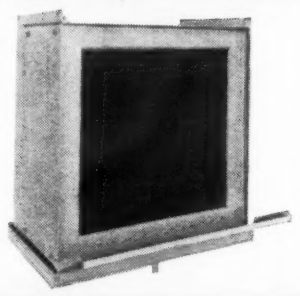
*The world's largest manufacturer of V-Belts*

**KRAMER TURBOFIN UNIT COOLER**



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| B & B Household Controls | $2.50 | Howell Special Capacitor Type | |
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| Amer. Rad. Multiple Exp. Valve | 3.50 | Penn Commercial Controls | $8 & $12.00 |
| Apex Water Regulating Valve | 3.50 | Iso Butane (Freezol) Per lb. | 1.25 |
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We also carry a complete stock of Gilmer Belts, Penn Water Regulating Valves, Glass Defrosting Trays, Lead and Fibre Gaskets, Etc. WRITE FOR PRICES.

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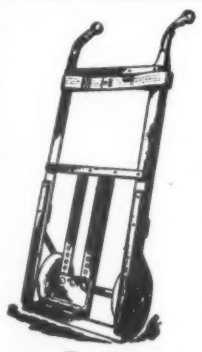

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Type X has 53 inch Handles and 8 inch Rubber Wheels. Type Y has 70 inch Handles, 5 inch Rubber Wheels and skids.

Type X with one strap $16.00
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We sell the ..... refrigerator.

The above rates apply only to United States and Possessions and Pan-American Postal Union Countries. Rate for Canada—Directory, $6.00; News, $6.00; Combination, $11.00. Rate for all other foreign countries—Directory, $5.00; News, $5.00; Combination, $9.00.

5-9-34


# QUESTIONS

### Household Ice Cream Freezer

*No. 1586* (Dealer, Texas)—"I wish to ask if you have any information about an ice cream freezer for use in the home refrigerator. Do you know of some company making such a thing or having attempted such a thing?"

*Answer*: April 25 issue of ELECTRIC REFRIGERATION NEWS announced an ice cream freezer manufactured by the Easy-Way Co., 432 Marquette Rd., Chicago. This freezer is constructed to fit inside the evaporator of a household electric refrigerator, and is operated by a small motor.

### Refrigeration Equipment

*No. 1587* (Varnish Manufacturer, Ohio)—"We are interested in obtaining a list of manufacturers of electrical refrigeration equipment, both the units and boxes. If you have such a list, please advise what the cost might be."

*Answer*: The 1934 REFRIGERATION DIRECTORY lists manufacturers of self-contained refrigerators, refrigeration systems, cabinets, and other component parts. Price is $3.00 per copy.

### Iceberg Units

*No. 1588* (Electrical Contractor, New York)—"We would like to buy a part for an 'Iceberg' unit. Could you please tell us who makes this unit or how we can purchase parts for same."

*Answer*: Contact the Iceberg Corp., Main St., Gardner, Mass., manufacturer of "Iceberg" refrigeration systems.

### Draw-wise Vegetable Revivers

*No. 1589* (Distributor, Iowa)—"Can you refer us to the manufacturer of the Draw-wise Vegetable Revivers for refrigerators? We have written to the G & G Mfg. Co., original manufacturer, who advise that they no longer make these pans. However, they believe the same type is being manufactured elsewhere. They were unable to give us the name or the address of the manufacturer.

"The Draw-wise hydrators had lids which fastened to the shelves, and the pan itself slid out like a drawer."

### Refrigeration Parts

*No. 1590* (Service Co., Florida)—"Please advise where we can get in touch with a refrigeration parts distributor in this territory. One supplying all makes of parts for domestic and commercial units."

*Answer*: Try the following parts distributors:
Home Appliance Service Co., Inc.
714 W. Market St., Greensboro, N. C.
Refrigeration Service Co.
508 S. Tryon St., Charlotte, N. C.

For a complete list of suppliers of refrigeration parts see the 1934 REFRIGERATION DIRECTORY.

### Ice Cube Maker Racks

*No. 1591* (Dealer, California)—"Would you kindly advise us where we can purchase cube ice maker racks or pans to fit in the sleeve of an ice cream cabinet."

*Answer*: Contact the Inland Mfg. Co., 15 Coleman Ave., Dayton, Ohio. This company can probably either supply your needs or refer you to a supplier.

### DeFroastair Fans

*No. 1592* (Manufacturer, Pennsylvania)—"Will you kindly favor with name of manufacturer of DeFroastair; this is a fan for use in refrigerators."

*Answer*: We fail to find DeFroastair in our records as a refrigerator fan trade name. If any one knows the name of the manufacturer of this fan we will be glad to forward the information to the inquirer.

### Commercial Units

*No. 1593* (Dealer, Connecticut)—"We wish to get in touch with a manufacturer who is making a small commercial unit. This unit, to meet our needs, must range from ½-hp. to 1½-hp. capacity, and must use either sulphur dioxide or methyl chloride for a refrigerant. If you could put us in touch with such a manufacturer, who has no established agency in Connecticut, we would appreciate it very much."

*Answer*: The 1934 REFRIGERATION DIRECTORY gives a complete list of manufacturers of commercial refrigeration systems. The Specifications Section of the DIRECTORY shows the capacities of commercial machines made by each of the various manufacturers.

### Metlflex Ice Cube Trays

*No. 1594* (Dealer, Alabama)—"We would like to know the name of the manufacturer of the Metlflex ice trays. This is the metal tray that bends and you can remove the ice cubes easily, just as from a rubber tray."

*Answer*: Metlflex ice cube trays are manufactured by Refrigeration Accessories Department, McCord Radiator & Mfg. Co., 2587 E. Grand Blvd., Detroit, Mich.

### Coin Meters

*No. 1595* (Mineral Water Supplier, New York)—"We have read the queries relative to coin meters, but are unable to purchase your 1934 REFRIGERATION DIRECTORY. Will you please let us have this information referred to in said inquiry."

*Answer*: Manufacturers of coin meters located in your territory are as follows:
General Electric Co., Industrial Dept.
Schenectady, N. Y.
Landis & Gyr, Inc.
104 Fifth Ave., New York, N. Y.
Zell Products Corp.
536 Broadway, New York, N. Y.

### "Midget" Refrigerators

*No. 1596* (Sales Agent, California)—"I am desirous of contacting a manufacturer of an electrical refrigerator of very small proportion—the 'midget' class—for the purpose of representing them as selling agent in this territory. Could you assist me by forwarding the names of such people?"

*Answer*: A number of manufacturers of household electric refrigerators make small refrigerators, primarily for apartment house installation. The sizes of refrigerators offered by the various manufacturers are given in the Specifications Section of the 1934 REFRIGERATION DIRECTORY.

# EARNINGS

### Kelvinator Corp.

DETROIT — Kelvinator Corp. reports for the quarter ending March 31 a net profit of $305,017.09 after charges depreciation and interest. This compares with a net loss of $330,688 for the similar period in 1933.

For the first half of its current fiscal year Kelvinator Corp. shows a net loss of $36,418.61, compared with a net loss of $660,882 for the first half of its last fiscal year.

### Borg-Warner Corp.

CHICAGO—Consolidated net earnings of Borg-Warner Corp., of which Norge Corp. is a subsidiary, for the first quarter of this year totaled $865,093, the largest for the company in any quarterly period since the second three months of 1930.

Earnings in the quarter compare with a total loss of $381,981 in the first corresponding period of last year and mark the fourth consecutive quarter in which the company has operated profitably.

The $865,093 net is equal to 70 cents a share on the 1,150,909 common shares outstanding on March 31 after allowance for preferred dividends.

The consolidated balance sheet shows a sharp gain in current assets due principally to gains in inventory and receivables. Current liabilities also gained as accounts payable and accruals rose with the volume of business.

As of March 31 current assets totaled $18,102,441, including cash of $2,705,867, government securities of $4,021,112, accounts receivable of $4,099,767, and inventories of $6,098,081, against current liabilities of $4,138,098, of which $2,734,409 was represented by accounts payable and accrued payroll.

Surplus totaled $13,670,980 as against $11,821,869 in 1933.

### Westinghouse Electric & Mfg. Co.

EAST PITTSBURGH, Pa.—Sales of all merchandise made by Westinghouse Electric & Mfg. Co. billed for the quarter just ended total $17,994,045 compared to $13,161,721 for the corresponding period of 1933, an increase of 36 per cent. Sales billed in March were higher than in any month since April, 1932.

The net loss for the quarter was $1,776,152 compared with $3,491,572 loss for the first quarter of 1933.

At the end of March there were approximately 35,300 employes on the payroll which compares with 26,500 in March, 1933.

### Stewart-Warner Corp.

CHICAGO — Stewart-Warner Corp. reports for the first three months of this year a net income of $167,495 after taxes and charges, equal to 13 cents a share on 1,246,847 shares, as compared with a net loss of $962,281 in the first quarter of 1933.

# CLASSIFIED

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RATES: Fifty words or less, one insertion $2.00, additional words four cents each. Three insertions $5.00, additional words ten cents each.

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**FRANCHISE OPEN**

LAST CALL for dealers to handle repossessed and reconditioned refrigerators of all makes for one of the largest wholesale jobbers in the United States. 10,000 refrigerators available for the coming season, all guaranteed. Some territories still open. Wonderful opportunity for the right people. We also have several hundred new refrigerators in crates at attractive prices. Keystone Refrigerator Exchange, Inc., 479 First Ave. corner 28th St., New York City.

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When in need of practical, trained shop mechanics, installation or service men, patronize this FREE Placement Bureau. We have competent, trained graduates available in every locality, to meet your requirements. With or without experience. No charge to the men or to you. Write, phone or wire.

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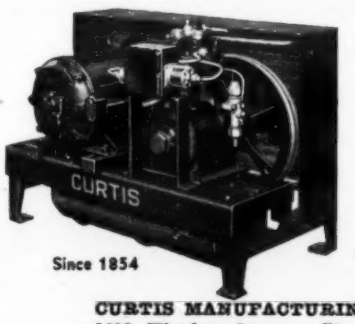


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**CURTIS REFRIGERATION**

Quiet, Compact, Slow Speed Condensing Units. Complete range of sizes for commercial and domestic applications. 1/6 h.p. to 5 h.p. Distributor Franchises still available.

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